Electrical energy saving improvements proposal for:

The Town of Halifax

499 Plymouth Street

Halifax, MA 02338

Prepared by:

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
Telephone: 781-447-4474
ECI-NE.com

nationalgrid® Project Expediter

Energy Conservation, Inc.
1150 Main Street
P.O. Box 726
Hanson, MA 02341

October 10, 2014

Mr. Charles Seelig
Town Administrator
Town of Halifax
499 Plymouth Street
Halifax, MA 02338

Dear Mr. Seelig:

Energy Conservation is pleased to provide you with this proposal for energy efficiency improvements at the Halifax Town buildings. This proposal includes incentive contribution provided through the National Grid Energy Initiatives program, and addresses the following:

- Replacement of boiler and pump room motors and installation of variable frequency drives (VFDs) at the Elementary School
- Installation of VFDs at well pumps 1-4
- Replacement of existing lighting systems throughout all Town buildings, roadway lighting and traffic lighting with new LED technology lighting systems

A listing of each building and recommended measures may be found on the next page. The total cost for this project is $516,640. National Grid will pay an estimated total incentive of $122,229 towards these improvements through their Energy Initiatives program. The estimated net cost to the Town of Halifax of $394,411 may be financed through National Grid. The estimated simple payback period for this project is 3.89 years, relative to the estimated annual electrical savings of $101,475 and total net cost to the Town of Halifax.

All of the removed lamps and ballasts will be disposed of properly. Manifests for all disposals will be provided to you for your records. Warranty on the installed new LED lighting system is five years. The lamp life of the new LED systems is 50,000 hours. Extra lamps will be left at the site for the few lamps that extinguish prematurely. Labor warranty is one-year on workmanship of installation.

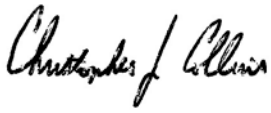
Energy Conservation shall assign to the Town of Halifax all of its rights to any and all warranties from the manufacturers or otherwise with respect to the lighting equipment purchased by the Town of Halifax from Energy Conservation. Energy Conservation agrees to procure and maintain, at the sole cost and expense of Energy Conservation, with a reputable and financially responsible insurance carrier or carriers, property damage and public liability insurance in the amount of not less than $1,000,000 workers compensation in the amount set forth by each state and a crime rider in the amount of not less than $250,000.

Energy Conservation further agrees to name the Town of Halifax and its parents, affiliates and subsidiaries as additional insureds and to provide the Town of Halifax with an insurance certificate as evidence of such coverage. In the event of cancellation or material modification of any policy, written notice of such cancellation or modification shall be given to the Town of Halifax at least thirty (30) days prior to such cancellation or modification as to each policy.

Energy Conservation represents and warrants that the installation of all equipment by Energy Conservation or its subcontractors shall be performed in a professional and workmanlike manner by qualified personnel and in accordance with all federal, state and municipal laws, rules and regulations and the policies and procedures of the Town of Halifax.

I look forward to working with you in helping the Town save energy, improving the quality and reliability of the lighting in these buildings and on the Town's roadways and thank you for your time.

Sincerely,



Christopher J. Collins
President, Energy Conservation, Inc.

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Electrical Energy-Saving Improvements for:

Halifax Town buildings

Building	kWh savings	Annual $ savings	Total cost	National Grid incentive	Net cost to the Town of Halifax	Simple payback in years
Brockton Store	1,555	$ 225	$ 1,742	$ 430	$ 1,312	5.83
Elementary School - lighting	156,716	$ 20,373	$ 99,121	$ 21,015	$ 78,106	3.83
Elementary School - motors & VFDs	85,754	$ 12,434	$ 53,640	$ 18,900	$ 34,740	2.79
Fire Station	21,601	$ 3,240	$ 13,293	$ 5,400	$ 7,893	2.44
Highway Barn	26,749	$ 4,012	$ 23,290	$ 6,687	$ 16,603	4.14
Library	39,957	$ 5,994	$ 28,222	$ 3,758	$ 24,464	4.08
Museum	4,923	$ 714	$ 5,595	$ 1,115	$ 4,480	6.27
Old School	2,770	$ 402	$ 2,111	$ 635	$ 1,476	3.67
Police Station	36,314	$ 4,358	$ 27,702	$ 9,078	$ 18,624	4.27
Recycling Center	8,846	$ 1,238	$ 7,951	$ 2,211	$ 5,740	4.63
Richmond Park Well lighting	1,598	$ 208	$ 3,657	$ 645	$ 3,012	14.50
Roadway & post top lighting	48,167	$ 13,968	$ 122,219	$ 17,000	$ 105,219	7.53
Senior Center	4,168	$ 625	$ 4,097	$ 497	$ 3,600	5.76
Town Hall	34,860	$ 5,229	$ 29,465	$ 4,988	$ 24,477	4.68
Traffic Lighting	28,185	$ 8,174	$ 24,525	$ -	$ 24,525	3.00
Water Department Office	3,282	$ 689	$ 4,725	$ 820	$ 3,905	5.67
Water Dept. - Well #3 - new VFD	41,608	$ 5,409	$ 15,327	$ 8,250	$ 7,077	1.31
Water Dept. - Well #4 - new VFD	52,009	$ 6,761	$ 17,366	$ 9,000	$ 8,366	1.24
Water Dept. - Wells #1 & #2 - new 40 HP VFDs	55,477	$ 7,212	$ 30,584	$ 11,400	$ 19,184	2.66
YMCA Well lighting	1,611	$ 209	$ 2,008	$ 400	$ 1,608	7.68
Totals =	**656,150**	**$ 101,475**	**$ 516,640**	**$ 122,229**	**$ 394,411**	**3.89**

October 10, 2014

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Town of Halifax Brockton Store
Halifax, MA 02338

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
D6A	60 Watt Incandescent Lamp	6	New A19 LED Lamp Medium Base	6	D6A	285
KA	60 Watt Incandescent Lamp	7	New LED Hi-Low Bay Interior - 10 Watt LED	7	80A UPS	350
TH38	75 Watt Halogen Lamp	2	New PAR 38 LED Lamp Medium Base	2	TH38	552
A-Lamp	65 Watt Incandescent Lamp	7	New A19 LED Lamp Medium Base	7	A-Lamp	368
		22		**22**		**1,555**

Total Project Cost	**$1,742**
Estimated Upstream Fixture & LED Lamp Electric Incentive	**$430**
Net Cost to the Town of Halifax	**$1,312**
Annual Electric Cost Savings	**$225**
Simple Payback in years	**5.82**
CO2 Footprint reduction (metric tons)	**1.07**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Elementary School
464 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
2x44	4 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	32	New 2 x 4 Recessed Volumetric Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	32	34 LED	13,100
2x43	3 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	28	New 2 x 4 Recessed Volumetric Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	28	34 LED	7,591
1x442	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	6	New 1 x 4 Recessed Lovered Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	6	34 LED	1,254
M6642	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	4	New 1 x 4 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	4	41 LED	570
E	2 Lamp 7 Watt Compact Fluorescent Hard Wired Fixture - Standard Ballast	35	New Single Face Red - 1.5 Watt LED Exit Sign	35	25	5,059
I42	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	20	New Retrofit Kit - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	20	41 LED	4,181
SUSP8	6 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	116	New 1 x 8 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	116	41 LED	77,288
SUSP4	3 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	50	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	50	41 LED	18,286
EXTSHORT	175 Watt Metal Halide	1	New LED Pole Mount - Exterior - 25 Watt LED	1	85A	788
WRAP	2 Lamp 4 Ft T12 40W Standard Lamp - Energy Efficient Magnetic Ballast	72	New 1 x 4 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	72	41 LED	22,888
WPBACK	150 Watt Metal Halide	6	New LED Wall Mount - Exterior - 26 Watt LED	6	85A	4,310
DECWALL	150 Watt Metal Halide	2	New LED Wall Mount - Exterior - 30 Watt LED	2	85A	1,402
		372		**372**		**156,716**

Proposed Retrofit - Occupancy Sensor Quanities	Proposed Quantity	Utility Code	Occ Control Savings
61 - Remote Mounted Occupancy Sensor	37	61	6,324

Total Project Cost	**$99,121**
Estimated Custom Utility Incentive	**$21,015**
Net Cost to the Town of Halifax	**$78,106**
Annual Electric Cost Savings	**$20,373**
Simple Payback in years	**3.83**
CO2 Footprint reduction (metric tons)	**108.29**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Electrical Energy-Saving pump & VFD improvements for:
Halifax Elementary School
464 Plymouth Street
Halifax, MA 02338

Location	Existing system description	Quantity	Proposed Retrofit - New system description
Boiler room - pumps #1 & #2	5 HP pump motor	2	Install new premium efficiency pump motor and Variable Frquency Drive (VFD) system
Pump room - pumps #3 & #4	10HP pump motor	2	Install new premium efficiency pump motor and Variable Frquency Drive (VFD) system
Pump room - pumps #5, #6, #7 & #8	2HP pump motor	4	Install new premium efficiency pump motor and Variable Frquency Drive (VFD) system

Total Project Cost	**$ 53,640**
Estimated Custom Utility Incentive	**$ 18,900**
Net Cost to the Town of Halifax	**$ 34,740**
Annual kWh Savings	**85,754**
Annual Electric Cost Savings	**$ 12,434**
Simple Payback in years	**2.79**
CO2 Footprint reduction (metric tons)	**59.26**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Fire Department
438 Plymouth Street
Halifax , MA 02338

October 10, 2014

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
2x43	3 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	13	New LED 2 x 4 Panel Fixture - 31 Watt LED	13	2x43	4,692
I84	4 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	31	New 1 x 8 Strip Fixture - 2 Lamp 4 Ft LED T8 16W Lamp - Energy Efficient Electronic Ballast Low Power	31	81	14,525
W42	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	2	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	2	41 LED	545
WP70wHPS-PIR	70 Watt High Pressure Sodium	6	New LED Wall Mount - Exterior - 20 Watt LED	6	85A	1,840
		52		**52**		**21,601**

Total Project Cost	**$13,293**
Estimated Custom Utility Incentive	**$5,400**
Estimated Total Electric Incentive	**$5,400**
Net Cost to Town of Halifax	**$7,893**
Annual Electric Cost Savings	**$3,240**
Simple Payback in years	**2.44**
CO2 Footprint reduction (metric tons)	**14.93**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:

Halifax Town Barn
60 Hemlock Lane
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
S82T	8' system - T12 lamps	9	ReLamp ReBallast with - 2 Lamp 4 Ft LED T8 16W Lamp - Energy Efficient Electronic Ballast Low Power	9	12	4,697
WW42	4' system	30	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	30	41	3,124
W84	8' system	22	New 1 x 8 Wraparound Fixture - 2 Lamp 4 Ft LED T8 16W Lamp - Energy Efficient Electronic Ballast Low Power	22	41	4,179
GYM	400 Watt metal halide (Garage)	6	New 2 x 4 Recessed Volumetric Fixture - 200 Watt LED	6	86B	3,502
HPSFLOOD400	Exterior floodlight	8	New LED Wall Mount - Exterior - 139 Watt LED	8	HPSFLOOD400	11,247
		75		**75**		**26,749**

Total Project Cost	**$**	**23,290**
Estimated Custom Utility Incentive	**$**	**6,687**
Estimated Total Electric Incentive	**$**	**6,687**
Net Cost to Client	**$**	**16,603**
Annual Electric Cost Savings	**$**	**4,012**
Simple Payback in years	**$**	**4.14**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Library
470 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
WW42	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	11	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	11	41	2,147
WW84	4 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	59	New 1 x 8 Wraparound Fixture - 4 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	59	41	13,664
EXTSHORT	Exterior - decorative pole	5	Retrofit to 25 Watt Remphos LED lamp	5	85A	3,942
EXTPOLE	250 Watt Metal Halide	3	New LED Pole Mount - Exterior - 93 Watt LED	3	85A	2,654
TRACKFLOOD	200 Watt Incandescent Lamp	22	New BR 40 LED Lamp Medium Base	22	TRACKFLOOD	17,550
		100		**100**		**39,957**

Total Project Cost	**$ 28,222**
Estimated Custom Utility Incentive	**$ 3,758**
Net Cost to the Town of Halifax	**$ 24,464**
Annual Electric Cost Savings	**$ 5,993**
Simple Payback in years	**4.08**
CO2 Footprint reduction (metric tons)	**16.86**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Town of Halifax - Museum
Halifax, MA 02338

October 10, 2014

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
TH38	75 Watt Halogen Lamp	14	New PAR 38 LED Lamp Medium Base	14	TH38	1,095
DRUMT12	2 Lamp 32-40 Watt Circline Compact Fluorescent Hard Wired Fixture - Standard Ballast	3	New LED Wall Mount - Sconce - 7 Watt LED	3	80A UPS	219
WW42T	2 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	6	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	6	41 LED	462
WW84T	4 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	8	New 1 x 8 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	8	41 LED	1,233
FL150wQ	150 Watt Incandescent Lamp	2	New LED Flood - 45 Watt LED	2	85A	920
FL70wMH	70 Watt Metal Halide	1	New LED Flood - 45 Watt LED	1	85A	219
A-Lamp	65 Watt Incandescent Lamp	8	New A19 LED Lamp Medium Base	8	A-Lamp	775
		42		**42**		**4,923**

Total Project Cost	**$5,595**
Estimated Prescriptive Utility Incentive	**$500**
Estimated Upstream Fixture & LED Lamp Electric Incentive	**$615**
Estimated Total Electric Incentive	**$1,115**
Net Cost to the Town of Halifax	**$4,480**
Annual Electric Cost Savings	**$714**
Simple Payback in years	**6.28**
CO2 Footprint reduction (metric tons)	**3.40**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Electrical Energy-Saving Lighting Improvements for:

Town of Halifax Old School
Halifax, MA 02338

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total Saved kW	Total kWh Savings
D6BR	60 Watt Incandescent Lamp	5	New BR 40 LED Lamp Medium Base	5	D6BR	0.23	230
KA	60 Watt Incandescent Lamp	2	New LED Hi-Low Bay Interior - 10 Watt LED	2	80A UPS	0.10	100
S42T	2 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	2	ReLamp ReBallast with - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	2	81	0.15	154
TH38	75 Watt Halogen Lamp	5	New PAR 38 LED Lamp Medium Base	5	TH38	0.32	1,380
WW44T	4 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	1	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	1	41 LED	0.17	171
A-Lamp	65 Watt Incandescent Lamp	14	New A19 LED Lamp Medium Base	14	A-Lamp	0.74	735
		29		**29**		**1.71**	**2,770**

Total Project Cost	**$2,111**
Estimated Prescriptive Utility Incentive	**$75**
Estimated Upstream Fixture & LED Lamp Electric Incentive	**$560**
Estimated Total Electric Incentive	**$635**
Net Cost to the Town of Halifax	**$1,476**
Annual Electric Cost Savings	**$402**
Simple Payback in years	**3.67**
CO2 Footprint reduction (metric tons)	**1.91**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Police Department
540 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
2x43	3 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	66	New 2 x 4 Recessed Volumetric Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	66	34 LED	18,648
F	2 Lamp 8 Ft T8 Standard Lamp - Electronic Ballast	1	New LED 6 Inch Recessed Can HW - 8 Watt LED	1	41	484
G	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	28	ReLamp ReBallast with - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	28	12	6,101
HPSWP250	250Watt High Pressure Sodium	2	New LED Wall Mount - Exterior - 60 Watt LED	2	HPSWP250	2,058
HPSFLOOD250	250Watt High Pressure Sodium	5	New LED Flood - 60 Watt LED	5	HPSFLOOD250	5,146
MHFLOOD70	70 Watt Metal Halide	2	New LED Flood - 22 Watt LED	2	MHFLOOD70	639
8'HO	2 Lamp 8 Ft T12 High Output EE Lamp - Standard Magnetic Ballast	4	New 1 x 8 Wraparound Fixture - 4 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	4	41	3,237
		108		**108**		**36,314**

Total Project Cost	**$27,702**
Estimated Custom Utility Incentive	**$9,078**
Net Cost to the Town of Halifax	**$18,623**
Annual Electric Cost Savings	**$4,358**
Simple Payback in years	**4.27**
CO2 Footprint reduction (metric tons)	**25.09**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Recycling Center
917 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Total kWh Savings
2x43T	Recessed 2' x 4'	4	New 2 x 4 Recessed Volumetric Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	4	1,117
S82T	8' system	2	ReLamp ReBallast with - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	2	1,044
GYM	400 Watt high bay (Garage)	3	New 2 x 4 Recessed Volumetric Fixture - 200 Watt LED	3	1,751
HPSWP250	Exterior wall pack	4	New LED Wall Mount - Exterior - 60 Watt LED	4	4,117
1x42T	Recesed 1' x 4'	7	New recessed 1' x 4'	7	817
		20		**20**	**8,846**

Total Project Cost	**$**	**7,951**
Estimated Custom Utility Incentive	**$**	**2,211**
Net Cost to the Town of Halifax	**$**	**5,740**
Annual Electric Cost Savings	**$**	**1,238**
Simple Payback in years		**4.64**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Town of Halifax Richmond Park Well
Halifax, MA 02338

October 10, 2014

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
I42T	2 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	24	New 1 x 4 Strip Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	24	81	1,441
A-Lamp	65 Watt Incandescent Lamp	3	New A19 LED Lamp Medium Base	3	A-Lamp	158
		27		**27**		**1,598**

Total Project Cost	**$3,657**
Estimated Custom Utility Incentive	**$600**
Estimated Upstream Fixture & LED Lamp Electric Incentive	**$45**
Estimated Total Electric Incentive	**$645**
Net Cost to the Town of Halifax	**$3,012**
Annual Electric Cost Savings	**$208**
Simple Payback in years	**14.50**
CO2 Footprint reduction (metric tons)	**1.10**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Roadway and post lighting summary

		Existing Fixture type		Proposed fixture type						
Count of Bill Print and Tariff Description			Quantity		Annual kWh savings	Annual $ savings	Total installed cost	National Grid incentive	Net Cost to the Town of Halifax	Simple payback period in years
Customer Name	Account No	Bill Print and Tariff Description	Luminaire							
TOWN OF HALIFAX	03304-94016	LUM HPS FLD 250W	1	ACP1LED 310A MVOLT 65 4K YK GY 0663 PCSS	767	$ 222	$ 1,257	$ 100	$ 1,157	5.20
	15634-26014	LUM HPS FLD 250W	3	ACP1LED 310A MVOLT 65 4K YK GY 0663 PCSS	2,300	$ 667	$ 3,770	$ 300	$ 3,470	5.20
		LUM HPS POST 100W	7	PTUE 100 4K AS G3 B S H PCS	920	$ 267	$ 15,159	$ 700	$ 14,459	54.20
		LUM HPS POST 50W	10	AVPL2 30LEDE10 MVOLT 4K R5 AY PCSS	1,533	$ 445	$ 10,678	$ 1,000	$ 9,678	21.77
		LUM HPS RWY 100W	62	ATBS F MVOLT R2 PCSS	21,996	$ 6,379	$ 37,241	$ 6,200	$ 31,041	4.87
		LUM HPS RWY 150W	1	ATBS H MVOLT R2 PCSS	521	$ 151	$ 640	$ 100	$ 540	3.57
		LUM HPS RWY 50W	62	ATBS B MVOLT R2 PCSS	11,134	$ 3,229	$ 35,128	$ 6,200	$ 28,928	8.96
		LUM HPS RWY 70W	18	ATBS E MVOLT R2 PCSS	4,021	$ 1,166	$ 10,633	$ 1,800	$ 8,833	7.58
		LUM MV RWY 100W	1	ATBS F MVOLT R2 PCSS	355	$ 103	$ 601	$ 100	$ 501	4.87
	52981-95011	LUM HPS FLD 400W	1	ACP1LED 610A MVOLT 65 4K YK GY 0663 PCSS	964	$ 279	$ 1,464	$ 100	$ 1,364	4.88
	65444-71012	LUM HPS FLD 400W	1	ACP1LED 610A MVOLT 65 4K YK GY 0663 PCSS	964	$ 279	$ 1,464	$ 100	$ 1,364	4.88
	77904-60013	LUM HPS FLD 250W	1	ACP1LED 310A MVOLT 65 4K YK GY 0663 PCSS	767	$ 222	$ 1,257	$ 100	$ 1,157	5.20
		LUM HPS FLD 400W	1	ACP1LED 610A MVOLT 65 4K YK GY 0663 PCSS	964	$ 279	$ 1,464	$ 100	$ 1,364	4.88
	90373-10016	LUM HPS FLD 400W	1	ACP1LED 610A MVOLT 65 4K YK GY 0663 PCSS	964	$ 279	$ 1,464	$ 100	$ 1,364	4.88
TOWN OF HALIFAX Total			170		**48,167**	**$ 13,968**	**$ 122,219**	**$ 17,000**	**$ 105,219**	**7.53**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Senior Center
506 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture Type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
E	Exit sign	3	New Single Face Red - 1.5 Watt LED Exit Sign	3	25	434
G	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	6	New Retrofit Kit - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	6	10	716
REMPHOSDRUM	Circline lamped surface mount	7	Retrofit - Remphos LED kit	7	80A	1,219
CANDLEABRA	Decorative wall sconce - candelabra lamps	18	Retrofit to 5 Watt LED candelabra lamp	18	80A	1,582
REMPHOS	2 Lamp 13 Watt Compact Fluorescent Hard Wired Fixture - Standard Ballast	3	Retrofit - Remphos LED kit	3	80A	217
		37		**37**		**4,168**

Total Project Cost	**$**	**4,097**
Estimated Custom Utility Incentive	**$**	**497**
Net Cost to the Town of Halifax	**$**	**3,600**
Annual Electric Cost Savings	**$**	**625**
Simple Payback in years		**5.76**
CO2 Footprint reduction (metric tons)		**2.47**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Town Hall
499 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
1x442	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	81	New 1 x 4 Wraparound Fixture - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	81	41 LED	15,299
E	2 Lamp 7 Watt Compact Fluorescent Hard Wired Fixture - Standard Ballast	3	New Single Face Red - 1.5 Watt LED Exit Sign	3	25	434
D6213	2 Lamp 13 Watt Compact Fluorescent Hard Wired Fixture - Standard Ballast	17	New LED 6 Inch Recessed Can HW - 8 Watt LED	17	80A UPS	1,417
D6PAR	300 Watt Incandescent Lamp	7	New LED 6 Inch Recessed Can HW - 25 Watt LED	7	80B UPS	7,293
G	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	7	New 1 x 4 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	7	41 LED	822
I41	1 Lamp 4 Ft T12 34W EE Lamp - Standard Ballast	3	ReLamp ReBallast with - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	3	12	404
FLOOD150	150 Watt Metal Halide	2	New LED Flood - 39 Watt LED	2	85A	1,323
W84	4 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	3	New 1 x 8 Wraparound Fixture - 4 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	3	41 LED	614
W42	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	9	New 1 x 4 Wraparound Fixture - 2 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	9	41 LED	1,057
CANDLEABRA	40 Watt Incandescent Lamp	24	Candleabra LED lamp	24	CANDLEABRA	3,637
REMPHOS	2 Lamp 13 Watt Compact Fluorescent Hard Wired Fixture - Standard Ballast	8	New LED Wall Mount - Sconce - 8 Watt LED	8	80A UPS	667
VERSILITE	60 Watt Incandescent Lamp	10	New LED 8 Inch Recessed Can HW - 10 Watt LED	10	80A UPS	1,894
		174		**174**		**34,860**

Proposed Retrofit - Occupancy Sensor Quanities	Proposed Quantity	Utility Code	Occ Control Savings
64 - Wall Mounted Occupancy Sensors	12	64	1,335

Total Project Cost	**$29,465**
Estimated Custom Utility Incentive	**$4,988**
Net Cost to the Town of Halifax	**$24,477**
Annual Electric Cost Savings	**$5,229**
Simple Payback in years	**4.68**
CO2 Footprint reduction (metric tons)	**24.09**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Electrical Energy-Saving Lighting Improvements for:
Halifax Traffic Lights
Halifax, MA 02338

Fixture type	Existing system description	Quantity	Proposed Retrofit - New system description	Total kWh Savings
DR6-RTFB-VLA	150 Watt incandescent traffic light - red	25	LED traffic light retrofit	12,527
DR6-YTFB-VLA	150 Watt incandescent traffic light - yellow	25	LED traffic light retrofit	3,132
DR6-GFTB-VLA	150 Watt incandescent traffic light - green	25	LED traffic light retrofit	12,527
			Total =	28,185

Total Project Cost	**$**	**24,252**
Estimated Custom Utility Incentive	**$**	**-**
Net Cost to the Town of Halifax	**$**	**24,252**
Annual Electric Cost Savings	**$**	**8,174**
Simple Payback in years		**2.97**
CO2 Footprint reduction (metric tons)		**19.48**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Halifax Water Department
500 Plymouth Street
Halifax, MA 02338

October 10, 2014

Fixture type	Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
G	2 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	23	New Retrofit Kit - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	23	10	2,395
I41	1 Lamp 4 Ft T8 Standard Lamp - Electronic Ballast	2	ReLamp ReBallast with - 1 Lamp 4 Ft LED T8 14W Lamp - Energy Efficient Electronic Ballast Low Power	2	10	71
REMPHOSDRUM	2 Lamp 32-40 Watt Circline Compact Fluorescent Hard Wired Fixture - Standard Ballast	4	New LED Wall Mount - Sconce - 22 Watt LED	4	80A	531
CANOPY	70 Watt Metal Halide	1	New LED Canopy Mount - Exterior - 30 Watt LED	1	85A	285
		30		**30**		**3,282**

Total Project Cost	**$**	**4,725**
Estimated Custom Utility Incentive	**$**	**820**
Net Cost to the Town of Halifax	**$**	**3,905**
Annual Electric Cost Savings	**$**	**689**
Simple Payback in years	**$**	**5.67**
		7.73

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

October 10, 2014

Electrical Energy-Saving pump & VFD improvements for:
Halifax pump locations
Halifax, MA 02338

Site	Existing system description	Quantity	Proposed Retrofit - New system description	Total kWh Savings
Wells 1 & 2	40 HP pump motor	2	Install Variable Frquency Drive (VFD) system	55,477
Well 3	60HP pump motor	1	Install Variable Frquency Drive (VFD) system	41,608
Well 4	75HP pump motor	1	Install Variable Frquency Drive (VFD) system	52,009
			Total =	149,094

Total Project Cost	**$**	**63,277**
Estimated Custom Utility Incentive	**$**	**28,650**
Net Cost to the Town of Halifax	**$**	**34,627**
Annual Electric Cost Savings	**$**	**19,382**
Simple Payback in years		**1.79**
CO2 Footprint reduction (metric tons)		**103.02**

Energy Conservation, Inc.
P.O. Box 726
Hanson, MA 02341
ECI-NE.com

Electrical Energy-Saving Lighting Improvements for:
Town of Halifax YMCA Well
Halifax, MA 02338

October 10, 2014

Existing system description	Existing Quantity	Proposed Retrofit - New system description	Proposed Quantity	Utility Incentive Code	Total kWh Savings
2 Lamp 4 Ft T12 40W Standard Lamp - Standard Ballast	13	New Retrofit Kit - 1 Lamp 4 Ft LED T8 16W Lamp - Energy Efficient Electronic Ballast Low Power	13	81	976
150 Watt Metal Halide	1	New LED Flood - 45 Watt LED	1	85A	635
	14		**14**		**1,611**

Total Project Cost	**$2,008**
Estimated Custom Utility Incentive	**$400**
Estimated Total Electric Incentive	**$400**
Net Cost to the Town of Halifax	**$1,608**
Annual Electric Cost Savings	**$209**
Simple Payback in years	**7.68**
CO2 Footprint reduction (metric tons)	**1.11**

Fixture types: 1x442, 2x43 & 2x44

Category: ECS
Energy Conservation Series

Prefix:
RCN

Fixture Series (Name):
Cynergy
(Recessed – Frosted Ribbed Lens)

RENOVA™
Innovative Lighting Ideas
Energy Efficient Solutions

Cynergy (Recessed) Series high efficiency fluorescent luminaire

GENERAL DESCRIPTION

The Cynergy (CYN) Series has been developed for illumination of interior spaces where superior advanced fluorescent lighting is required together with high fixture efficiency. This series provides an attractive, energy efficient architectural look which has been specifically designed to replace existing parabolic troffer style fixtures. Comfortable, low glare, uniform lighting is attributed to this style of fixture.

Typical applications for this type of product are interior spaces where finished ceilings and walls exist. Applications Include:

- Commercial/Corporate Office Spaces
- Retail Spaces, Public Spaces and Airports
- Schools, Colleges and Universities
- Hospitals, Government Facilities and Military Bases

DESIGN FEATURES / SPECIFICATIONS

CONSTRUCTION
- Precision die-formed from 22 ga. cold rolled steel.
- Mechanically fastened / resistance welded for superior construction.
- Finish on housing and internal bracketry to be pre-painted gloss white polyester powder coat enamel.
- Finish on all external cosmetic trim to be post-painted "textured" high reflectance white polyester powder coat enamel. Custom colors are available.
- Heavy guage steel (NYC) is optional.

REFLECTOR
- Precision die-formed optics which has been designed for maximum efficiency and photometric properties using the latest CAD software.
- Choice of optics include focused, normal and spread distribution.
- Choice of reflector materials include:
  - Alanod Miro4 Enhanced Specular Aluminum, 95% total reflectance, 25 year warranty.
  - Enhanced Specular Aluminum, 92% total (min.) reflectance, 25 year warranty.
  - High Reflectance White Powder Coated Alum., 91% total reflectance, 10 year warranty.
  - Consult factory for availability of all other material choices.

LAMPHOLDERS
- Vossloh-Schwabe® premium type featuring:
  - Anti-vibration internal lamp locking design
  - High temperature resistant "T" marking.
  - Heat and UV blocking shield to prevent degradation of material
  - Multi-point contact design for optimum lamp pin contact.
  - Produced in accordance with DIN ISO 9001 and IEC standards.

BALLASTS
- All standard ballasts are electronic, energy saving, thermally protected, Class-P, non PCB, Sound Rated "A", 0 degree (Type 1 Outdoor). Consult with factory for the latest information regarding power shedding, step / dimming, sunlight harvesting and other energy saving options.
- UL/CSA certified, where applicable. Compliant with Federal Ballast Law (Public Law 100-357, 1988).
- Choice of ballast factors: L=Low, N=Normal, H=High.
- Warranted by ballast manufacturer. Typical ballast warranty is for 5 years (120v-277v) and 3-years (347v-480v). Consult factory for latest warranty information.

LAMPS
- Supplied by others unless otherwise specified.
- Factory installed if required - Consult factory.
- Lamp Type, CRI ratings, temperature colors, lamp life ratings are all viable options which can be supplied - Consult factory for information.

LENS (DIFFUSER)
- Custom extruded profile for precision fit.
- Linear prisms designed for both visual appeal and control of lighting distribution.
- Extruded from 100% clear, virgin acrylic with 30% "DR" additive (used to resist breakage).
- Special formula high light transmission frosted acrylic polymer used for glare free sheilding and high overall fixture efficiency.
- Consult factory for all available lens / diffuser options.

MOUNTING
- Luminaire is designed to be mounted in a standard NEMA Type "G" T-Bar ceiling grid.

ELECTRICAL
- Luminaire is UL/CUL listed and labeled.
- Product includes luminaire disconnect as specified in NEC 410.73(G), 2005 Edition, and CEC part 1, rule 30-308(4), 2006 Edition.

QUALITY CONTROL
- All fixtures are designed, fabricated, assembled, tested, packaged and shipped from RENOVA's manufacturing facility. All fixtures are inspected and labeled prior to shipment.

GUARANTEE
- RENOVA warrants all fixtures to be free of defects in manufacturing and workmanship for a period of (1) year from date of purchase. Please refer to the "Terms and Conditions" section of the RENOVA website for additional information.

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

RENOVA Lighting Systems, Inc. 20 Middlesex Road Mansfield, MA 02048 (800) 635-6682 www.renova.com

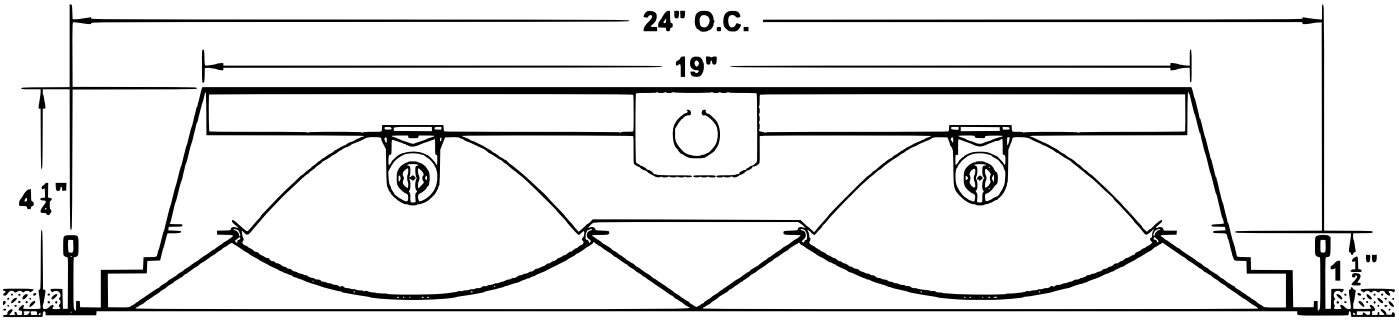
Category: ECS
Energy Conservation Series

Prefix:
RCN

Fixture Series (Name):
Cynergy
(Recessed – Frosted Ribbed Lens)

RENOVA™
Innovative Lighting Ideas
Energy Efficient Solutions

2-Lamp T8 2x2 I 2x4 Cynergy Cross Section Shown (Recessed)



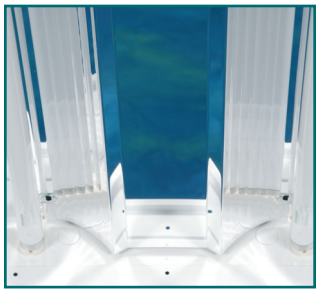
ORDERING GUIDE

CATEGORY	SERIES	SIZE		REFLECTOR MATERIAL	REFLECTOR PHOTOMETRY		NUMBER OF LAMPS	LAMP TYPE (WATTAGE)	BALLAST VOLTAGE	NUMBER OF BALLASTS	LAMPS PER BALLAST	BALLAST FACTOR		OPTIONS
ECS	- **RCN**		-			-			-				-	**FRL**
Energy Conservation Series	**RCN** - REC. CYNERGY SERIES	**0** - 1x2 **1** - 1x4 **2** - 2x2 **4** - 2x4		**M** - MIRO4 (95% TR) **W** - WHITE (91% TR)	**F** - FOCUSED **N** - NORMAL **S** - SPREAD		**1** - 1L **2** - 2L	**17** - 17w T8 **25** - 25w T8 **28** - 28w T8 **30** - 30w T8 **32** - 32w T8 **14** - 14w T5 **28** - 28w T5 **24** - 24w T5HO **54** - 54w T5HO	**120** - 120v, 60 Hz **277** - 277v, 60 Hz **UNV** - 120v - 277v, 60 Hz	**(BLANK)** - 1 **2** - 2	**1** - 1 **2** - 2	**L** - Low **N** - Normal **H** - High **SD** - Step Dim. **DM** - Line Voltage Dim.		**FRL** - Frosted Linear Prism Acrylic Lens (Standard) **ARS** - Air Return Slots ***ADDITIONAL OPTIONS** (See "Options" sheet for all available options)

Photometric data, IES files and all other information is available upon request.

Vossloh Locking Lampholders (Standard)

High Light Transmission Frosted Lens (Standard)



Multi-Faceted Reflector (Designed for Maximum Efficiency)

Precision Fabricated Frame Assembly (Air Return Slots are Optional) (Custom Colors are Optional)

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

RENOVA Lighting Systems, Inc. 20 Middlesex Road Mansfield, MA 02048 (800) 635-6682 www.renova.com

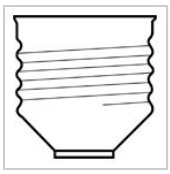
Fixture type: CANDLEABRA

GE Lighting

76454 - LED2CAM/C/TP

GE Energy Smart® Candles

• Energy-efficient LED lamps. Long life.



GENERAL CHARACTERISTICS

Lamp Type	Replacement Lamps - Decorative
Bulb	Candles
Base	Medium Screw (E26)
Additional Info	GE Life Rating is based on 70% Lumen Maintenance
Bulb Finish	Clear
Bulb Shape	CA11
Lamp Type	Candle
Rated Life	12000.0 hrs

PHOTOMETRIC CHARACTERISTICS

Color Rendering Index (CRI)	80.0
Color Temperature	2900.0 K
Initial Lumens	60.0

ELECTRICAL CHARACTERISTICS

Voltage	120.0
Wattage	2.0

DIMENSIONS

Bulb Diameter (DIA)	1.380 in(35.1 mm)
Maximum Overall Length (MOL)	4.5000 in(114.3 mm)

PRODUCT INFORMATION

Product Code	76454
Description	LED2CAM/C/TP
Standard Package	Case
Standard Package GTIN	10043168764541
Standard Package Quantity	3
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	3
UPC	043168764544

Quantum®

LED Quick-Mount®

Fixture type: E

Contemporary Thermoplastic Exits

Intended Use

Ideal for applications requiring attractive, quick installation exit signs and low energy consumption.

Features

Precision-molded thermoplastic housing is impact and scratch-resistant, corrosion-proof and UV-stabilized to resist discoloration.

Innovative snap-together design allows installation in less than three minutes. Universal mounting – top, back or end.

Long-life LEDs feature very low energy consumption and rated life up to 25 years. Consumes less than one watt of energy.

Fully assembled single-face exit with optional extra faceplate for easy field conversion to double face.

Replaceable chevron directional indicator knockouts for choice of direction.

Universal mounting capability – top, back or end (canopy provided).

Automatic recharge after discharge.

Conveniently located test switch and status indicator provide visual and manual means of monitoring system operation.

The self diagnostic emergency signs comply with NFPA Lite Safety Code and automatically test the battery once a month for five minutes and once every six months for 30 minutes

U.S. Patent No. 5,526,251, 5,611,163, 5,739,639 and 5,954,423. Other patents pending.

Listings – UL Listed. NOM Certified.

Ordering Information

Example: **LQM S W 3 R 120/277 EL N**

Family
LQM LED

Face type
S Stencil
P Panel[1,2]

Housing color
(blank) Black[2]
W White

Number of faces
1 Single[2]
3 Single with extra faceplate and color panel for field conversion to double-face

Panel color
R Red
G Green

Input voltage[3]
120/277 Dual voltage

Operation
(blank) Standard non-emergency
EL N Nickel-cadmium battery
EL N SD Nickel-cadmium battery with self-diagnostics[5]

Options[2]
For options and fixture compatibility, see page 307.

Exit signage
(blank) Exit
SALIDA Salida[2,4]

Certification
(blank) UL Listed
NOM NOM Certified

Accessories	(Order separately)
ELA W US12	12" stem kit w/white canopy
ELA WGEX	Back-mount wireguard
ELA WGEXT	Top-mount wireguard
ELA WGEXE	End-mount wireguard

Quick-Mount Installation:

1) Connect jumper leads (provided) to AC input leads in J-box. Fasten bracket and canopy to J-box.
2) Remove faceplate from housing and snap housing onto canopy.
3) Connect input leads to leads at corner of housing wire channel. Connect battery.
4) Snap out directional chevron indicators (if necessary) and snap faceplate onto canopy.

Electrical Application Data

Primary Circuit

Type	Volts	Watts	Amps
Standard LED red	120	.04	.57
	277	.05	.68
Standard LED green	120	.05	.62
	277	.05	.72
Emergency LED red	120	.04	.72
	277	.92	.92
Emergency LED green	120	.04	.72
	277	.05	.92

Emergency Circuit

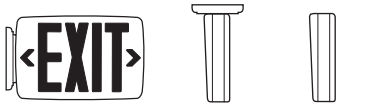
Type	Volts	Watts	Amps
DC6	6	12.2	2.03
DC12	12	12.1	1.01

NOTES:
1 For custom signage only. Special wording available on panel face. Consult factory.
2 See "with options" below for special housing dimensions.
3 Some special voltages available. Consult factory.
4 Letters 6" high with 7/16" stroke.
5 See "SD option" below for special housing dimensions.

For additional options, accessories and fixture compatibility, see page307.

Dimensions are shown in **inches (millimeters)** unless otherwise noted.

No Options:



END MOUNT TOP MOUNT BACK MOUNT

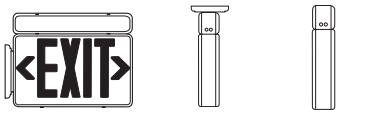
Width: 11 (298)
Height: 7-5/8 (193)
(Add 7/8 (22) for canopy)
Depth: 1-15/16 (49)
Weight: 2.6 lbs. (1.2 kgs.)

With Options:

END MOUNT TOP MOUNT BACK MOUNT

Width: 12-1/4 (311)
Height: 7-1/2 (191)
(Add 7/8 (22) for canopy)
Depth: 2 (51)
Weight: 2 lbs. (.9 kgs.)

SD Option:



END MOUNT TOP MOUNT BACK MOUNT

Width: 12-1/4 (311)
Height: 10 (254)
(Add 7/8 (22) for canopy)
Depth: 2 (51)
Weight: 2.6 lbs. (1.2 kgs.)

c UL us LISTED (LED LAMP) FC 3 YEAR WARRANTY RoHS

The next generation of energy efficient LED **outdoor rated replacement lamps**

RemPhos "HID to LED" LEDSS® Lamps

The "HID to LED" LEDSS® lamps *by RemPhos Technologies* offers an economical alternative to upgrade to long lasting LED lighting, while retaining the original fixture. The LEDSS® series replaces HID (high intensity discharge), HPS (high pressure sodium), and MH (metal halide) type lamps. Light is emitted 360 degrees as well as the top so that the original fixture will be illuminated perfectly and uniformly. Extremely efficient at >110LPW, the LEDSS® comes with either E26(Edison) or E39(Mogul) bases. UL Listed for use indoor or outdoor, and an IP64 rating. Multiple lumen output and CCTs are available.

All the benefits of a quality LED retrofit:

- Energy savings
- Long life (L70=50,000hrs)
- Reduced maintenance costs
- Superior quality LED light
- Supports digital control systems
- No hum, no flicker, no mercury

Plus the unique benefits of the LEDSS lamps:

- UL Listed
- Waterproof IP64 for outdoor use
- Easily mounts inside existing fixtures
- Damp environment approved
- Low glare, high uniformity clean white light

DISCLAIMER: Max ambient temperature is 65C (150F). If used in a fully enclosed fixture, customer is responsible for proper thermal testing prior to use, otherwise RemPhos warranty is void.

LEDSS® Lamps

c UL us LISTED (LED LAMP)

DATE

JOB NAME

TYPE

Features	Applications
• UL Listed • IP64 • >110LPW	• Post top retrofit • Jelly jar retrofit • Street light retrofit • Globe retrofit

Manufacturer	Series	Light Output	Color Temp.	Base Type	Options
RPT	LEDSS	1200LM = 12W 1700LM = 16W 2500LM = 25W 4000LM =37W 5600LM = 55W	4000K	E26 (Edison E39 (Mogul)	AC (100-277V AC)

Ordering Example: RPT-LEDSS-1200LM-4000K-E26-AC

Details

Application Features: The LEDSS® "HID to LED" lamps easily replace older bulb technologies. The lamps are perfect for new construction or retrofits. The LED lamps is designed to safely and **quickly** replace most existing bulb types. Product includes all of the mounting hardware and electrical connections required.

Construction: UV protected and flame retardant plastic, anodized aluminum

Finish: White bottom, Clear lens

Electrical: 89% efficient UL Recognized internal driver, LM80 LEDs

Optics: Patent-pending optical system delivers perfectly uniform light from the integral LED lamp. You will be unable to tell the difference between this LED lamp and traditional fluorescent.

Approvals: cUL, FCC, RoHs

Manufactured: USA – 3 Year Warranty

DISCLAIMER: Max ambient temperature is 65C (150F). If used in a fully enclosed fixture, customer is responsible for proper thermal testing prior to use, otherwise RemPhos warranty is void.

Designed by US.
Made by US.

Fixture type: D6213, D6PAR, F

HALO®

Catalog #		Type
Project		
Comments		Date
Prepared by		

HALO LED Module 600 Series For New and Existing Installations

The Halo LED ML7068xx modules are designed for retrofit applications with an Edison screw base adapter (included with the module) for use in existing housings OR may also be used in new construction with the LED dedicated housing Series H750x. Halo LED 600 Series modules deliver in the range of 416-793 lumens (depending upon the trim and selected color temperature); and the 600 Series offers selection of four color temperatures: 2700K, 3000K, 3500K, 4000K. Halo LED offers a superior optical design that yields productive beam lumens, good cutoff and low glare.

DESIGN FEATURES

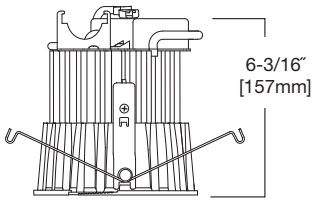
Exceeds the light output and distribution of a 65W BR30 incandescent lamp or an 18W compact fluorescent luminaire (lamp and reflector trim), while consuming less than 14 watts.

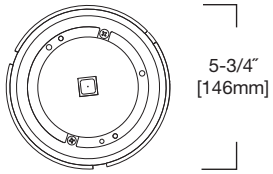
Dimming

The HALO LED 600 Series luminaire is dimmable to 15% with standard 120V electronic low voltage dimmers (recommended), incandescent or magnetic low voltage dimmers; and dims to 5% using dimmers with low end trim adjustment. Standard incandescent dimmers require a minimum load of typically >40 watts on the circuit for full range dimming performance (four LED modules). For dimming with digital (smart) multi-location dimmers or when dimming fewer than four LED modules, electronic low voltage dimmers are required (ELV dimmers need a neutral connection in the wallbox).

Quality of Light

Halo 600 Series provides excellent color rendering (80 CRI), and a selection of four color temperatures (2700K, 3000K, 3500K and 4000K). CRI and color temperature performance conform to parameters established by ENERGY STAR® SSL standards (refer to ANSI-C78.377 - 2008 for CCT specifications). LED's have virtually no ultraviolet and minimal infrared wavelengths, and they do not emit heat like conventional lamps.





Optical Design

Optical design yields productive beam lumens, 50° cutoff, and low glare.

Life

Rated for 50,000 hours at 70% lumen maintenance.

Compatibility

The Halo ML7068xx LED modules are designed for use in the dedicated H750x series housings OR for retrofit applications in existing Halo or ALL-PRO™ H7/ET7/EI7 housings. The Halo LED module is designed for use in either IC (insulated ceiling) or non-IC construction.
Compatible HALO and ALL-PRO housings include model numbers:

- Dedicated LED Housing: H750x Series
- Halo Housings: H7x Series
- ALL-PRO Housings: ET7x and EI7x Series

Screw Base Adapter

Edison screw-base adapter supplied with module allows simple wiring connection to existing housing.

Module Construction

Durable die-cast and extruded aluminum construction conducts heat away from the LED keeping the junction temperatures below specified maximums even when installed in insulated ceiling environments.

Air-Tite™ Rating

The Halo LED module has passed restricted air flow testing, and now qualifies any housing to meet air-tight building codes. Certified under ASTM-E283 standards.

LED Driver

The LED module is controlled by a high efficiency driver with a power factor of >.90 at an input power of 120V, 50/60Hz. Driver has integral thermal protection in the event of over temperature or internal failure.

Warranty

Cooper Lighting provides a three year limited warranty on the Halo LED Luminaire which includes the LED Module, LED Recessed Housing and LED trims.

LED Module in New or Existing Construction – Housings other than Halo or All-Pro

If used in recessed housings other than Halo or All-Pro the Cooper Lighting 3-year warranty applies to the LED Module and Trim only. As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes.
Installer is responsible to securely retain the LED Module and Trim in a housing at time of installation.

Labels

- UL/cUL Listed

Can be used to meet the following requirements:

- State of California Title 24-2008 High Efficacy Compliant (with designated trims)
- International Energy Conservation Code (IECC) 2009 High Efficacy Compliant (with designated trims)
- Washington State Energy Code - AIR-TITE™
- New York State Energy Conservation Construction Code AIR-TITE™

Accessories

- Oversize Trim Rings (Goof Rings) - OT400P and OT403P oversize trim rings are installed behind the Halo LED trim ring to aid in masking ceiling irregularities and cut-out errors.
- H277 –300VA rated Step-down transformer for use with Non-IC housings and LED Module (see App. Note).
- H347 –75VA rated Step-down transformer for use with Non-IC housings and LED Module (see App. Note).
- ML7RAB - Retrofit Adapter Band for retrofit of Halo LED Modules into 6" nominal housings that do not have torsion spring receivers for module installation. The ML7RAB kit supplies parts to retrofit four housings and includes: four adapters with instructions, metal piercing screws, and locking wire nuts.

ML706830 600 Series LED Dimmable Module

3000°K Correlated Color Temperature

49X_Series Trims

6" LED Module and Trim For New Construction OR Retrofit Applications

600 Series Energy Data:

(Values at non-dimming line voltage)	
Minimum Starting Temp: -30°C (-22°F)	
EMI/RFI: FCC Title 47 CFR, Part 18, Class B (Consumer)	
Sound Rating:	Class A standards
Input Voltage:	120V
Power Factor:	>0.90
Input Frequency:	50/60Hz
THD:	<20%
Rated Wattage:	13.8W
Input Power:	13.8W
Input Current:	126mA
Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F)	
Maximum Non-IC Ambient Continuous Operating Temperature 40°C (104°F)	

600 Series Summary Lighting Data:

Lumen range: 416-793
Lumens per watt: . . . . . .up to 57
Watts at 120VAC: 13.8

Color

Correlated Color Temperature (CCT): 2700-4000K
Color Rendering Index (CRI, R_a): 80

ENERGY STAR

Can be used for T24 2008 California Title 24 High Efficacy Compliance

Can be used for IECC International Energy Conservation Code High Efficacy Compliance

Qualified & Compliant with designated LED modules and trims.

ALU

airtite™

ADV100265
rev 2/4/10

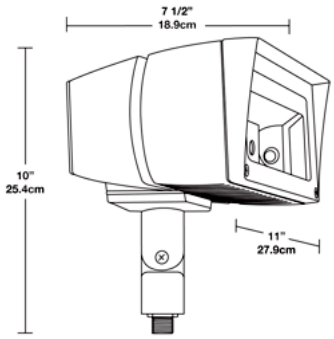
COOPER Lighting
www.cooperlighting.com

FFLED39

Rectangular shaped LED floodlight designed to replace 150W Metal Halide. Patent Pending airflow technology ensures long LED and driver lifespan. Use for building facade lighting, sign lighting, LED landscape lighting and instant-on security lighting.

Color: Bronze

Weight: 12.5 lbs



LED Info

Watts:	39W
Color Temp:	5100K (Cool)
Color Accuracy:	68
L70 Lifespan:	100000
LM79 Lumens:	2,991
Efficacy:	66 LPW

Driver Info

Type:	Constant Current
120V:	0.4 A
208V:	0.25 A
240V:	0.22 A
277V:	0.19 A
Input Watts:	45W
Efficiency:	86%

Technical Specifications

Lumen Maintenance:
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

NEMA Type:
7H x 6V Beam Spread.

LEDs:
Three multi-chip, 13Watt high performance LEDs.

Driver:
Constant Current, Class 2, 100 - 277V, 50 - 60 Hz, 100 - 277VAC 0.7-0.55 Amps; 277VAC 0.55 Amps.

Fixture Efficacy:
66 Lumens per Watt

Surge Protection:
6 KV

Ambient Temperature:
Suitable for use in 40°C ambient temperatures.

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Thermal Management Housing:
Superior heat sinking with external Air-Flow fins.

Mounting:
Heavy-duty mounting arm with O ring seal & stainless steel screw.

Color Consistency:
7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Accuracy:
68 CRI

Color Temperature (Nominal CCT):
5100K

Color Uniformity:
RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for (SSL) Products, ANSI C78.377-2008.

Equivalency:
The FFLED39 is Equivalent in delivered lumens to a 150W Metal Halide.

Reflector:
Semi-specular anodized aluminum.

Gaskets:
High-temperature silicone gaskets.

Finish:
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Green Technology:
Mercury and UV free.

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy Lighting Facts label.

California Title 24:
FFLED39 complies with California Title 24 building and electrical codes.

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. See our full warranty .

Patents:
The FFLED design is protected by U.S. Pat. D643,147, Canada Pat. 140798, China Pat. ZL201130171304.1, Mexico Pat. 36757 and pending patent in Taiwan.

UL Listing:
Suitable For Wet Locations. Suitable for mounting within 1.2M(4FT) of the ground.

Threaded Size:
1/2" threaded arm.

DLC Listed:
This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

Fixture types: GYM

NEW

LED High Bays
150W & 200W Fixtures

ILP

"Your Number One Source for Energy Efficient Lighting"

INDUSTRIAL LIGHTING PRODUCTS
PROUDLY MADE IN THE U.S.A.

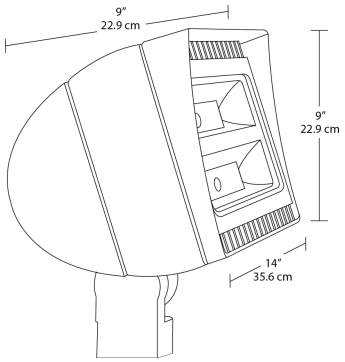
FXLED78SF

Fixture type: HPSFLOOD250

High power, wide distribution LED floodlight. Replaces 250W MH. Patent Pending airflow technology ensures long LED and driver lifespan. Use for building facade lighting, sign lighting, LED landscape lighting and instant-on security lighting.

Color: Bronze

Weight: 24.0 lbs



LED Info

Watts:	78W
Color Temp:	5100K (Cool)
Color Accuracy:	67
L70 Lifespan:	100000
LM79 Lumens:	7,597
Efficacy:	97 LPW

Driver Info

Type:	Constant Current
120V:	0.66A
208V:	0.41A
240V:	0.35A
277V:	0.30A
Input Watts:	79W
Efficiency:	99%

Technical Specifications

UL Listing:
Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

Lumen Maintenance:
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

IP Rating:
Ingress Protection rating of IP66 for dust and water.

EPA:
2

NEMA Type:
6H x 5V Beam Spread.

Replacement Range:
The FXLED78 can be used to replace 150 - 320W Metal Halide Floodlights based on delivered lumens.

LEDs:
Six multi-chip, 13Watt high-output, long-life LEDs.

Driver:
Constant Current, Class 2, 2000mA, 100-277V, 50-60Hz, 1.1A, Power Factor 99%

THD:
5% at 120V, 13.1% at 277V

Surge Protection:
4kV

Ambient Temperature:
Suitable for use in 40°C ambient temperatures.

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Thermal Management:
Superior heat sinking with external Air-Flow fins.

Housing:
Die-cast aluminum housing and door frame.

Mounting:
Heavy-duty Slip Fitter for 2 3/8"OD pipe.

Color Consistency:
7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:
RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for (SSL) Products, ANSI C78.377-2008.

Equivalency:
The FXLED78 is Equivalent in delivered lumens to a 250W Metal Halide.

Reflector:
Specular vacuum-metallized polycarbonate

Gaskets:
High-temperature silicone gaskets.

Finish:
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Green Technology:
Mercury and UV free.

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy Lighting Facts label.

California Title 24:
FFLED78 complies with California Title 24 building and electrical codes.

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Patents:
The FXLED78 design is protected by U.S. Pat. D659,280, Canada Pat. 143155, China Pat. ZL201130443125.9, Mexico Pat. 36558 and pending patent in Taiwan.

DLC Listed:
This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

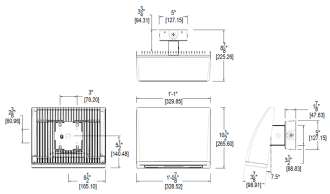
WPLEDC52

Fixture type: HPSWP250

LED 52W Wallpacks. 3 cutoff options. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 17.6 lbs



LED Info

Watts:	52W
Color Temp:	5000K (Cool)
Color Accuracy:	67
L70 Lifespan:	100000
LM79 Lumens:	3,888
Efficacy:	65 LPW

Driver Info

Type:	Constant Current
120V:	0.51A
208V:	0.33A
240V:	0.29A
277V:	0.25A
Input Watts:	60W
Efficiency:	87%

Technical Specifications

UL Listing:
Suitable for wet locations.

Lumen Maintenance:
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

LEDs:
Four (4) multi-chip, 13W high-output, long-life LEDs.

Drivers:
Two drivers, constant current, 720mA, Class 2, 100 - 277V, 50 - 60 Hz, 100 - 277VAC .8 Amps.

THD:
13.1% at 120V

>Fixture Efficacy:
64 Lumens per Watt

Ambient Temperature:
Suitable for use in 40°C ambient temperatures.

Surge Protection:
6 KV

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Thermal Management:
Cast aluminum Thermal Management system for optimal heat sinking. The WPLED is designed for cool operation, most efficient output and maximum LED life by minimizing LED junction temperature.

Housing:
Precision die cast aluminum housing, lens frame.

Mounting:
Die-cast aluminum wall bracket with (5) 1/2" conduit openings with plugs. Two-piece bracket with tether for ease of installation and wiring.

Arm:
Die-cast aluminum with wiring access plate.

Color Consistency:
7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Accuracy:
67 CRI

Color Temperature (Nominal CCT):
5000K

Patents:
The WPLED design is protected by patents in the U.S. Pat D653,377, Canada Pat. 142252, China Pat. ZL201130356930.8, and Mexico Pat. 36921 and pending patent in TW.

DLC Listed:
This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

Color Uniformity:
RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

Reflector:
Hydroformed aluminum designed for maximum efficiency.

Gaskets:
High temperature silicone.

Finish:
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Green Technology:
WPLEDs are Mercury and UV free.

IESNA LM-79 & IESNA LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Replacement:
The WPLED52 replaces 250W HID Wallpacks.

California Title 24:
WPLED complies with California Title 24 building and electrical codes.

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. See our full warranty .

For use on LEED Buildings:
IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Dark Sky Approved:
The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

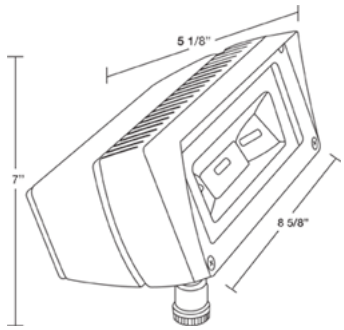
FFLED18

Fixture type: MHFLOOD70

Rectangular shaped LED floodlight designed to replace 70W Metal Halide. Patent Pending airflow technology ensures long LED and driver lifespan. Use for building facade lighting, sign lighting, LED landscape lighting and instant-on security lighting.

Color: Bronze

Weight: 4.8 lbs



LED Info

Watts:	18W
Color Temp:	5100K (Cool)
Color Accuracy:	70
L70 Lifespan:	100000
LM79 Lumens:	1,624
Efficacy:	73 LPW

Driver Info

Type:	Constant Current
120V:	0.2 A
208V:	0.15 A
240V:	0.13 A
277V:	0.11 A
Input Watts:	22W
Efficiency:	80%

Technical Specifications

UL Listing:
Suitable For Wet Locations. Suitable for mounting within 1.2M(4FT) of the ground.

Lumen Maintenance:
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

NEMA Type:
7H x 6V Beam Spread.

Airflow:
Patent pending Airflow technology heat sink for superior cooling.

LEDs:
18 Watt high performance LEDs.

Driver:
Constant Current, Class 2, 100 - 277V, 50 - 60 Hz, 100 - 277VAC 0.4 Amps.

Input Watts:
22.

Fixture Efficacy:
73 Lumens per Watt.

Surge Protection:
6 KV.

Ambient Temperature:
Suitable for use in 40°C ambient temperatures.

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Thermal Management Housing:
Die-cast aluminum housing, lens frame and mounting arm.

Mounting:
Heavy-duty mounting arm with O ring seal & stainless steel screw.

Color Consistency:
3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Accuracy:
70 CRI.

Color Temperature (Nominal CCT):
5100K.

Color Uniformity:
RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for (SSL) Products, ANSI C78.377-2008.

Equivalency:
The FFLED18 is Equivalent in delivered lumens to a 70W Metal Halide.

Reflector:
Semi-specular anodized aluminum.

Gaskets:
High-temperature silicone gaskets.

Finish:
Chip and fade resistant polyester .

Green Technology:
Mercury and UV free.

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy Lighting Facts label.

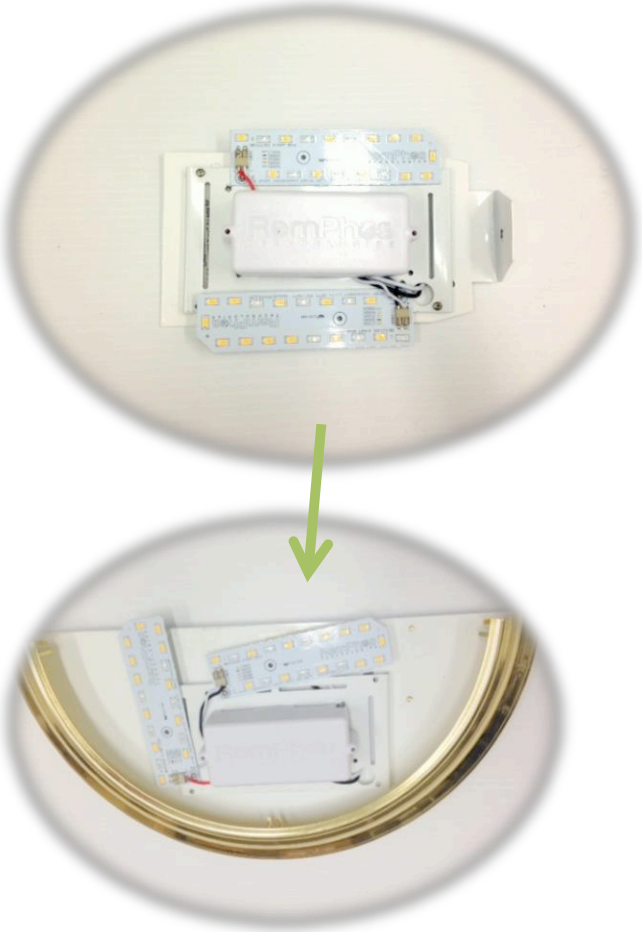
California Title 24:
FFLED18 complies with California Title 24 building and electrical codes.

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. See our full warranty .

Patents:
The FFLED18 design is protected by Taiwan Patent 01510948 and patents pending in the U.S., Canada, China, and Mexico.

DLC Listed:
This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

>130 LPW



The next generation of energy efficient **LED Sconce Fixture Module**

RemPhos LEDSR™

This is the solution you have been waiting for. The LEDSR Sconce Module *by RemPhos Technologies* can be used by fixture OEMs or as an in-the-field retrofit. The LED system offers an economical alternative to upgrade to long lasting LED lighting, while retaining the simple clean look of virtually any wall sconce fixture. The LEDSR module is an ETL 1598 Listed luminaire featuring a unique LED array and driver. The LEDSR features a patent-pending design including one slot on each side which allows the 2 LED boards to easily be oriented to achieve the desired position to fit fixtures of different shapes and sizes.

All the benefits of a quality LED retrofit:

- 900 lm output, 7W
- Long life (L70=50,000hrs)
- Reduced maintenance costs
- Available in 2700K or 3000K, >83 CRI
- No hum, no flicker, Mercury free
- Energy Star, ETL, FCC, RoHs

Plus the unique benefits of the LEDSR:

- Unique flexible design to fit almost any fixture
- Easily mounts to fixture with self-tapping screws
- Superior optics means perfect light distribution
- Environmentally friendly manufacturing process
- Designed in the USA

For the Lighting Fixture OEM:

No need to send your fixtures to UL for re-certification. You can simply install this kit at the factory, it already has UL1598 approval.

For the Electrician/ESCO:

Meets UL and NEC standards to retrofit existing fixture in the field.

LEDSR®

DATE

JOB NAME

TYPE

Features	Applications
• >130 LPW	• Hotels
• Retrofit	• Dormitories
• Flexible	• Multi-family housing
• UL Listed LED Luminaire	• Office buildings

Manufacturer	Details	Lumens	Color Temperature/CRI	Options
RPT	LEDSR	900LM		
		900lm = 7W	2700K* 3000K	OCC = high/low motion sensor 10VDIM = 0-10V dimmable EMG = emergency battery backup

BI - LEVEL DIMMING

Ordering Example: RPT-LEDSR-900LM-4000K-OCC

*Special Order

Details

Application Features: Easily install into almost any wall sconce fixture with this high efficiency LED kit. We designed this system with the installer in mind; we made it as easy as possible for a quick install! Innovative design allows it to fit most fixture styles. Extremely high efficacy at over 130LPW.

Construction: Powder-coated white stamped chassis, LED boards are riveted in place and can swing out.

Electrical: 92% efficient UL Recognized internal driver, LM80 LEDs

Optics: Patent-pending optical system delivers perfectly uniform light to the fixture.

Approvals: ETL Listed to UL1598 as an LED Luminaire and UL1598C Classified Retrofit Kit

Manufactured: China – 3 Year Warranty

Unique LED arrays expand to fit various styles of fixtures perfectly!

US and Foreign Patents Pending

TOSHIBA
Leading Innovation >>>

Project:	Toshiba Lamp:
Type:	Notes:

Fixure type: TRACKFLOOD

BR40

Ordering Information

Ordering Code	Input Voltage (VAC)	Lamp Shape	Base Type	CCT[1]	Initial Lumens (lm)[2]	Wattage (W)	Lamp Efficacy (lm/W)	Rated Life (hrs)[3]	CBCP (cd)	Power Factor	Equivalency[4]	Lamp Weight lb (g)	Dimmable	ENERGY STAR
13BR40/27K-T	120	BR40	E26	2700K	950	13.0	73.1	40,000	82	0.98	65W Halogen	1.39 (630)	Yes	●
13BR40/40L-T	120	BR40	E26	4000K	1050	13.0	80.9	40,000	81	0.98	65W Halogen	1.39 (630)	Yes	●
20BR40/27M-T	120	BR40	E26	2700K	1330	20.0	66.5	40,000	80	0.90	90W Halogen	1.45 (658)	Yes	
20BR40/40M-T	120	BR40	E26	4000K	1400	20.0	70.0	40,000	80	0.90	90W Halogen	1.45 (658)	Yes	●

1. CCT Range complies to ANSI C78.377-2008.
2. Thermally stable typical lumens (± 10%)
3. Rated life is based on 70% lumen maintenance and engineering testing and probability analysis; life hours per ENERGY STAR® may vary.
4. Equivalency based on the ENERGY STAR® Integral LED Lamp criteria for directional lamps.
5. Rated for damp location.

Note: All information consistent with IESNA LM-80-08 results and IESNA LM-79-08 testing completed by a qualified third party facility. All lamps meet ENERGY STAR Integral LED Lamp requirements and will be submitted for testing. Five-year warranty based on 12 hr/day usage. Toshiba LED Lighting Systems Division reserves the right to make changes and/or improvements in designs and/or dimensions without notice or obligation.

5 FIVE YEAR WARRANTY

lighting facts LED Product Partner

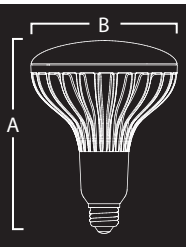
c UL us LISTED

Dimensions

Model BR40

MOL (A) 6.50” (165.1 mm)

Diameter (B) 4.88” (123.96 mm)



Note: Lamp shape conforms to ANSI C78.21-2003. Designed to comply with RoHS Directive 2002/95/EC.

Energy Savings

Ordering Code	50W Incandescent	65W Incandescent	90W Incandescent
13BR40/27K-T	$162.80	$228.80	—
20BR40/27M-T	$132.00	$198.00	$308.00

Note: Energy savings based on using one bulb for 40,000 hr rated life at 11¢/kWh. Does not include maintenance and replacement lamp savings.

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE — Provides general illumination in commercial and residential applications. Ideal for use in closets, foyers, hallways, corridors, bedrooms, offices, utility work areas, stairways and much more.

CONSTRUCTION — This contemporary shaped fixture features a matte white acrylic diffuser and white or textured bronze aluminum housing.

OPTICS — Produces the following lumens at 50,000 hours life:
2700K 612 lumens
3000K 642 lumens
4000K 660 lumens

ELECTRICAL — Fixture operates at 120 volts, 60 Hz. Standard input = 9.3 watts, 70 lumens per watt.

Works with most standard incandescent dimmers (see list of suggested dimmers on page 2).

INSTALLATION — All mounting hardware included.

LISTINGS — CSA certified to US and Canadian standards and listed suitable for damp or wet locations.

U.S. Patent No. D691,763

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

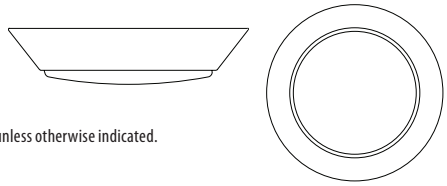
Decorative Indoor

Versi Lite™ 7" LED Flush

HIGH-PERFORMANCE LED

Specifications

Height: 1-3/4 (4.4)
Width: 7-1/4 (18.4)



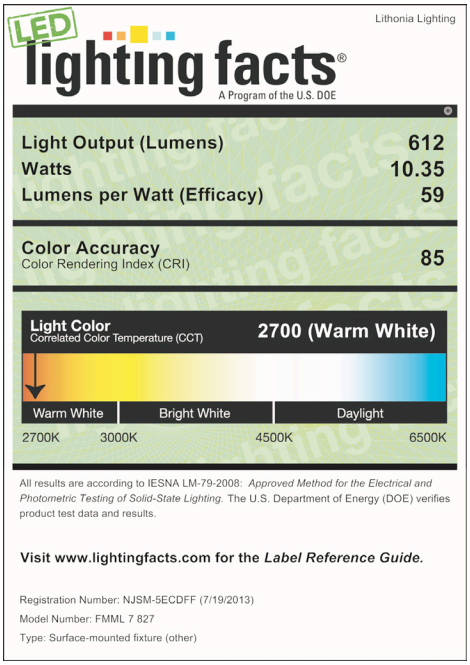
All dimensions are inches (centimeters) unless otherwise indicated.

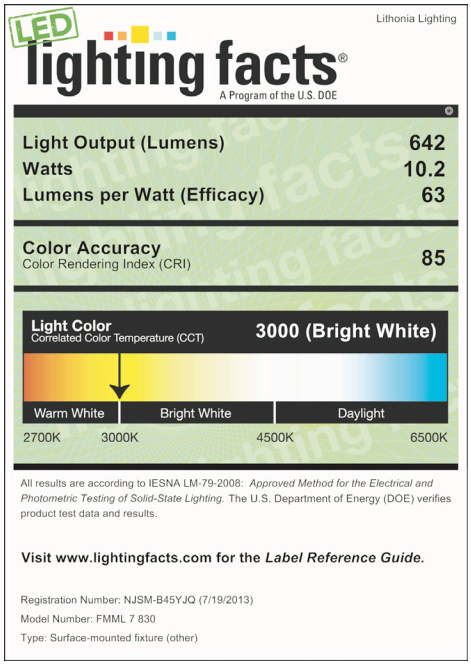
ORDERING INFORMATION For shortest lead times, configure product using **standard options (shown in bold).** **Example:** FMML 7 840 WL

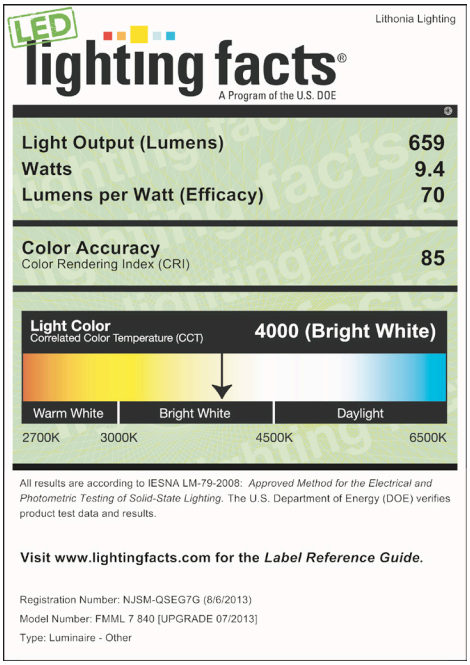
FMML	7				
Series	**Size**	**CRI**	**Color temperature**	**Fixture finish**	**Option**
FMML LED Versi Lite flushmount	**7** 7" diameter	**8** >80	**40** 4000K (660 lumens) **30** 3000K (642 lumens) 27 2700K (612 lumens)	**(blank)** White **DDBT** Textured bronze	**WL** Wet location

FMML 7 840

LIGHTING FACTS







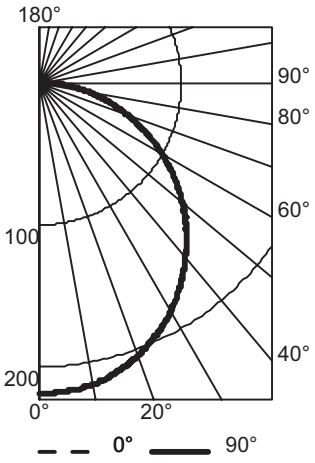
Suggested Dimmers

The FMML is designed to operate with most standard Triac Based (Forward Phase-Control or Leading Edge) dimmers and is not compatible with 0-10v dimming systems. The following is a list of dimmers tested and does not imply any guarantee or warranty of compatibility with a particular application. Unlisted dimmers do not imply non-compatibility.

Manufacturer	Part Number (s)	Manufacturer	Part Number (s)
Leviton	6633P	Lutron	DVELV 300P
Leviton	IPL06	Lutron	Skylark 300P
Leviton	6674P	Lutron	NTELV 300
Leviton	IPE04	Lutron	NLV 600
Leviton	Trimatron 600W	Synergy	ISD 600 I 120

PHOTOMETRICS

FMML 7 test no. LTL22758, tested in accordance to IESNA LM-79.



CP Summary

	0°	90
0°	219	219
5°	218	218
15°	211	211
25°	196	196
35°	173	174
45°	146	146
55°	116	116
65°	83	84
75°	50	50
85°	21	20
90	11	11

Coefficients of Utilization

pf		20%								
pc		80%			70%			50%		
pw		70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	119	119	119	116	116	116	111	111	111
	1	108	103	98	100	96	92	96	92	89
	2	98	89	82	87	80	75	83	78	73
	3	89	78	69	76	68	62	73	66	61
	4	81	69	60	67	59	52	65	57	52
	5	75	61	52	60	52	45	58	50	44
	6	69	55	46	54	46	39	52	45	39
	7	64	50	41	49	41	35	48	40	34
	8	59	46	37	45	37	31	44	36	31
	9	55	42	33	41	33	28	40	33	28
	10	52	39	31	38	30	25	37	30	25

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	170	26.0	26.0
0° - 40°	279	42.5	42.5
0° - 60°	495	75.5	75.5
0° - 90°	654	99.7	99.7
90° - 120°	2	0.3	0.3
90° - 130°	2	0.3	0.3
90° - 150°	2	0.3	0.3
90° - 180°	2	0.3	0.3
0° - 180°	656	100.0	100.0

DECORATIVE INDOOR & OUTDOOR: One Lithonia Way, Conyers, GA 30012 Phone: 800-748-5070 Fax: 770-860-3903 www.lithonia.com

Fixture types: 8'HO, M6642, SUSP4, SUSP8, WRAP

RENOVA™
Innovative Lighting Ideas
Energy Efficient Solutions

Series:
ECS Energy Conservation Series

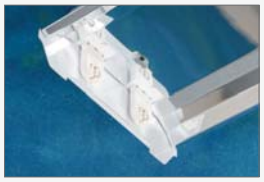
Fixture Type :
NPW Narrow Profile Wrap

Project Name	Fixture Type	Catalog #	Quantity
Town of Halifax			

The Narrow Profile Wrap (NPW) Series has been developed to provide maximum energy-efficient, cost effective general lighting in a clean, narrow profile design that is both appealing and functional. The linear prism design along each side of the lens allows for optimal light distribution while minimizing glare.

Typical applications for this type of product are interior spaces where finished ceilings exist. Applications include:

- *Office Buildings*
- *Industrial Facilities*
- *Commercial / Retail Spaces*
- *Schools and Universities*
- *Hospitals / Healthcare Facilities*
- *Government Facilities*
- *Military Bases*



Twist-Lock style Lampholders
(Standard)

Multi-Faceted Reflector
(Designed for Maximum Efficiency and Optimal Distribution)

Standard Lens
(Bottom: Pattern 12 Prismatic Embossment)
(Side: Linear Prisms)

Mounting Details
(Included in all Housings)

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

Design Features / Specifications

CONSTRUCTION:
- Housing is manufactured from code gauge, die-formed cold rolled steel
- Mechanically fastened for strength and rigidity – Spot welded construction is optional
- Code gauge end caps and internal components
- 7/8" EKOs provided in end caps for row mounting

REFLECTOR / OPTICS:
- Reflectors are precision-formed, per UL aluminum construction standards, multi-faceted for maximum photometric performance
- Choice of reflector materials include High Reflectance White finish and Alanod Miro4 specular finish. Other options available – consult factory
- Reflectors / Ballast Covers are easily removed without the use of tools

ELECTRICAL:
- All standard ballasts are instant start or program rapid start, UL listed, CEE rated high efficiency electronic, Class "P", Sound Rated "A", RoHS compliant and are the universal voltage (120v–277v) type. All ballasts are mechanically fastened into fixture housing. Other voltages are available – consult factory
- Many other lamp / ballast & wiring configurations are available – consult factory for all other available options
- All fixtures include Ballast (Luminaire) Disconnects as per UL 1598 standards

FINISH:
- Pre-painted gloss white polyester powder coat baked white enamel finish is standard
- Post-painted gloss white polyester powder coat baked white enamel finish is optional
- Custom colors are optional

LENS / DIFFUSER:
- Lens profile designed to fit uniformly against housing / end cap without sagging
- High quality, 100% virgin clear acrylic with a "DR" additive for improved resistance to breakage. 30% DR is standard, 50% DR is optional
- Pattern 12 prismatic embossment on bottom of lens with extruded, linear prisms on each side of lens is standard
- Polycarbonate material, additives and special prismatic patterns are available – consult factory for all available options

LAMPHOLDERS:
- Twist-Lock style, snap-in, thermoplastic type ensure positive lamp retention
- High temperature rated (T-Rating)

INSTALLATION:
- Fixture can be mounted several ways: Surface, Pendent, Chain or Cable

CERTIFICATIONS:
- All fixtures are UL/CUL Listed and labeled
- Suitable for damp locations

Scan for additional information on this fixture type.

VETERAN OWNED AND OPERATED
c UL us LISTED
Illuminating Engineering Society Sustaining Member
SME Society of Manufacturing Engineers
NTMA National Tooling and Machining Association
NEMA Member
ARRA Funding Compliant
Made in USA

RENOVA Lighting Systems, Inc. • 20 Middlesex Road, Mansfield, MA 02048 • (800) 635-6682 • www.renova.com

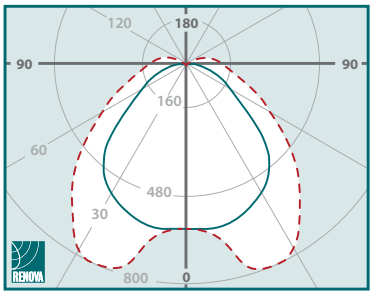
RENOVA

Innovative Lighting Ideas
Energy Efficient Solutions

Series:
ECS Energy Conservation Series

Fixture Type :
NPW Narrow Profile Wrap

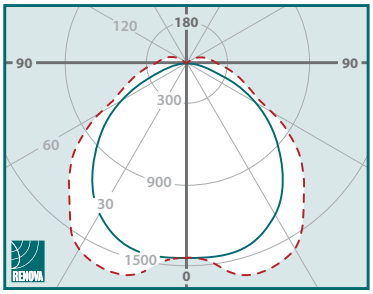
1 Lamp Photometric Data



ECS-NPW4-MN-132-UNV-11L
Independant Test Report #: 16726
Total Luminaire Efficiency: 91.0%
Spacing Criterion:

— 0 deg 1.32 — 90 deg 1.69
— 180 deg 1.32 — 270 deg 1.69

2 Lamp Photometric Data

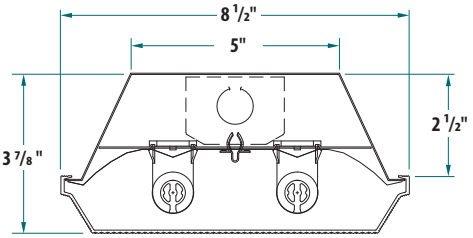


ECS-NPW4-MN-232-UNV-12L
Independant Test Report #: 16728
Total Luminaire Efficiency: 87.3%
Spacing Criterion:

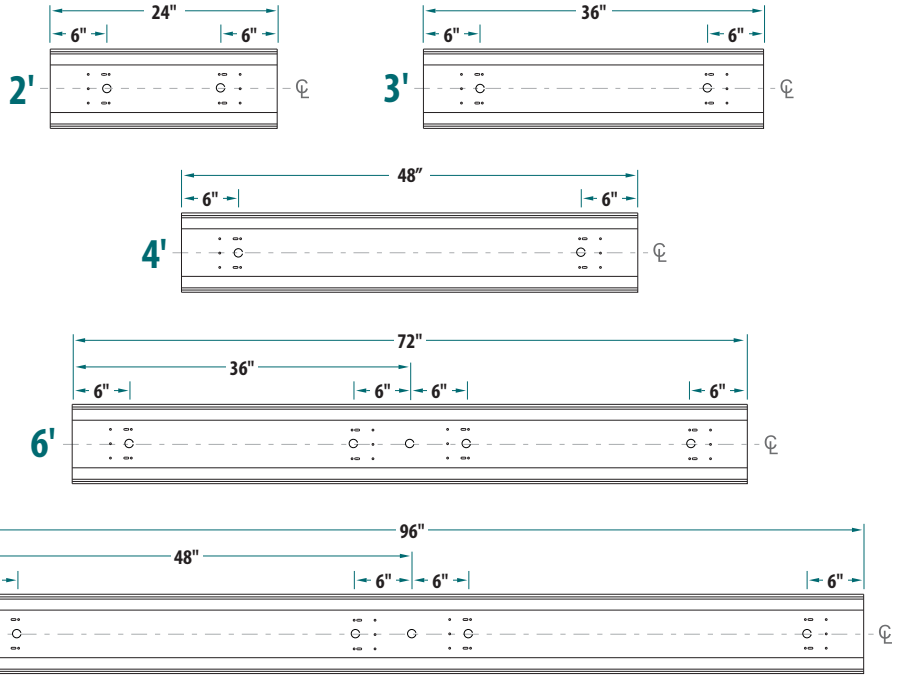
— 0 deg 1.32 — 90 deg 1.53
— 180 deg 1.32 — 270 deg 1.53

**Please see website for all other photometric data.*

2-Lamp T8 Narrow Profile Wrap Cross Section



Fixture Housing Dimensions



Note: Unless otherwise specified, all EKOs are 7/8" diameter.

Ordering Information

Series	Fixture Type	Size		Reflector Material	Optics (Distribution)		# of Lamps	Lamp Type (Wattage)	Ballast Voltage	# of Ballasts	# Lamps per Ballast	Ballast Factor		Ballast Type	Options
ECS	NPW		-			-				-			-		-

Energy Conservation Series

Narrow Profile Wrap

2 - 24"
3 - 36"
4 - 48"
6 - 72"
8 - 96"

M - Miro4 (95% TR)
W - White (91% TR)
C - Custom (Specify)

F - Focused
N - Normal
S - Spread
C - Custom

**N - Normal is standard*

**C - Custom optics are described in "Options" box*

1 - 1 Lamp
2 - 2 Lamp
3 - 3 Lamp
2', 3', or 4' Hsg
2 - 2 Lamp
4 - 4 Lamp
6 - 6 Lamp
6' and 8' Hsg

17 - (2') 17w T8
25 - (3') 25w T8
32 - (4') 32w T8

14 - (2') 14w T5
21 - (3') 21w T5
28 - (4') 28w T5

24 - (2') 24w T5HO
39 - (3') 39w T5HO
54 - (4') 54w T5HO

120 - 120v, 60 Hz
277 - 277v, 60 Hz
UNV - 120v-277v, 60 Hz (Multi-Tap)
347 - 347v, 60 Hz
480 - 480v, 60 Hz
xxx - Less Ballast

**UNV - Universal voltage is standard*

S - Slave (Less Ballast)
1 - 1
2 - 2
3 - 3
4 - 4

0 - 0
1 - 1
2 - 2
3 - 3
4 - 4

**If "S" was used in "# of Ballasts" box, mark as "0"*

**Use suffix "M" for Master (Example: 4M)*

L - Low
N - Normal
H - High

**If "S" was used in "# of Ballasts" box, mark as "0"*

IST - Instant Start
RST - Rapid Start
LVD - Low Voltage Dimming
DIM - Line Voltage Dimming
SDM - Step-Dimming

ADDITIONAL OPTIONS
(Please see separate "Options Sheet" for all available options)

Hg *Fluorescent lamps contain small amounts of mercury. Such lamps are labeled "Contains Mercury" and / or with the symbol "Hg." Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at www.lamprecycle.org.*

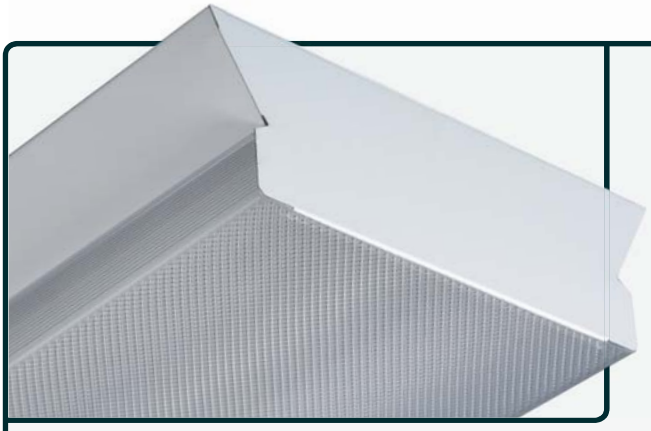
RENOVA Lighting Systems, Inc. • 20 Middlesex Road, Mansfield, MA 02048 • (800) 635-6682 • www.renova.com

RENOVA™
Innovative Lighting Ideas
Energy Efficient Solutions

Series:
ECS Energy Conservation Series

Fixture Type :
MPW Medium Profile Wrap

Project Name	Fixture Type	Catalog #	Quantity

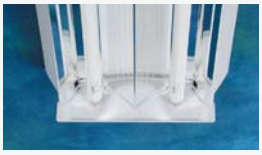


The Medium Profile Wrap (MPW) Series has been developed to provide maximum energy-efficient, cost effective general lighting in a clean, medium-wide profile design that is both appealing and functional. The linear prism design along each side of the lens allows for optimal light distribution while minimizing glare. The housing profile also allows the fixture to be used as an easy surface mount replacement and "cover-up" for an existing recessed 1x4 Troffer.

Typical applications for this type of product are interior spaces where finished ceilings exist. Applications include:

- *Office Buildings*
- *Industrial Facilities*
- *Commercial / Retail Spaces*
- *Schools and Universities*
- *Hospitals / Healthcare Facilities*
- *Government Facilities*
- *Military Bases*

Twist-Lock style Lampholders
(Standard)



Multi-Faceted Reflector
(Designed for Maximum Efficiency and Optimal Distribution)

Standard Lens
(Bottom: Pattern 12 Prismatic Embossment)
(Side: Linear Prisms)

Mounting Details
(Included in all Housings)

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

Design Features / Specifications

CONSTRUCTION:
- Housing is manufactured from code gauge, die-formed cold rolled steel
- Mechanically fastened for strength and rigidity – Spot welded construction is optional
- Code gauge end caps and internal components
- 7/8" EKOs provided in end caps for row mounting

REFLECTOR / OPTICS:
- Reflectors are precision-formed, per UL aluminum construction standards, multi-faceted for maximum photometric performance
- Choice of reflector materials include High Reflectance White finish and Alanod Miro4 specular finish. Other options available – consult factory
- Reflectors / Ballast Covers are easily removed without the use of tools

ELECTRICAL:
- All standard ballasts are instant start or program rapid start, UL listed, CEE rated high efficiency electronic, Class "P", Sound Rated "A", RoHS compliant and are the universal voltage (120v–277v) type. All ballasts are mechanically fastened into fixture housing. Other voltages are available – consult factory
- Many other lamp / ballast & wiring configurations are available – consult factory for all other available options
- All fixtures include Ballast (Luminaire) Disconnects as per UL 1598 standards

FINISH:
- Pre-painted gloss white polyester powder coat baked white enamel finish is standard
- Post-painted gloss white polyester powder coat baked white enamel finish is optional
- Custom colors are optional

LENS / DIFFUSER:
- Lens profile designed to fit uniformly against housing / end cap without sagging
- High quality, 100% virgin clear acrylic with a "DR" additive for improved resistance to breakage. 30% DR is standard, 50% DR is optional
- Pattern 12 prismatic embossment on bottom of lens with extruded, linear prisms on each side of lens is standard
- Polycarbonate material, additives and special prismatic patterns are available – consult factory for all available options

LAMPHOLDERS:
- Twist-Lock style, snap-in, thermoplastic type ensure positive lamp retention
- High temperature rated (T-Rating)

INSTALLATION:
- Fixture can be mounted several ways: Surface, Pendent, Chain or Cable

CERTIFICATIONS:
- All fixtures are UL/CUL Listed and labeled
- Suitable for damp locations

Scan for additional information on this fixture type.

VETERAN OWNED AND OPERATED
c UL us LISTED
Illuminating Engineering Society Sustaining Member
SME Society of Manufacturing Engineers
NTMA National Tooling and Machining Association
NEMA Member
ARRA Funding Compliant
Made in USA

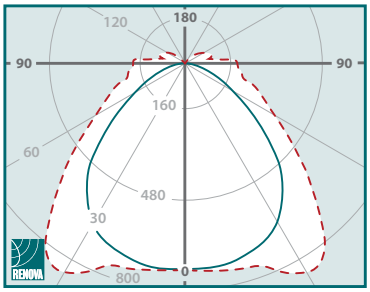
RENOVA

Innovative Lighting Ideas
Energy Efficient Solutions

Series:
ECS Energy Conservation Series

Fixture Type :
MPW Medium Profile Wrap

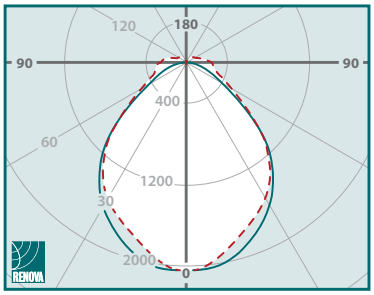
1 Lamp Photometric Data



ECS-MPW4-MN-132-UNV-11L
Independant Test Report #: 16732
Total Luminaire Efficiency: 90.3%
Spacing Criterion:

— 0 deg 1.29 — 90 deg 1.63
— 180 deg 1.29 — 270 deg 1.63

2 Lamp Photometric Data

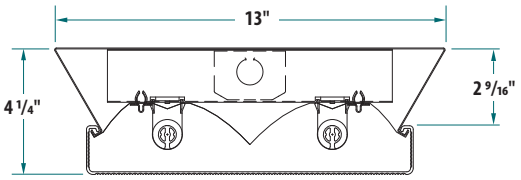


ECS-MPW4-MN-232-UNV-12L
Independant Test Report #: 16734
Total Luminaire Efficiency: 88.1%
Spacing Criterion:

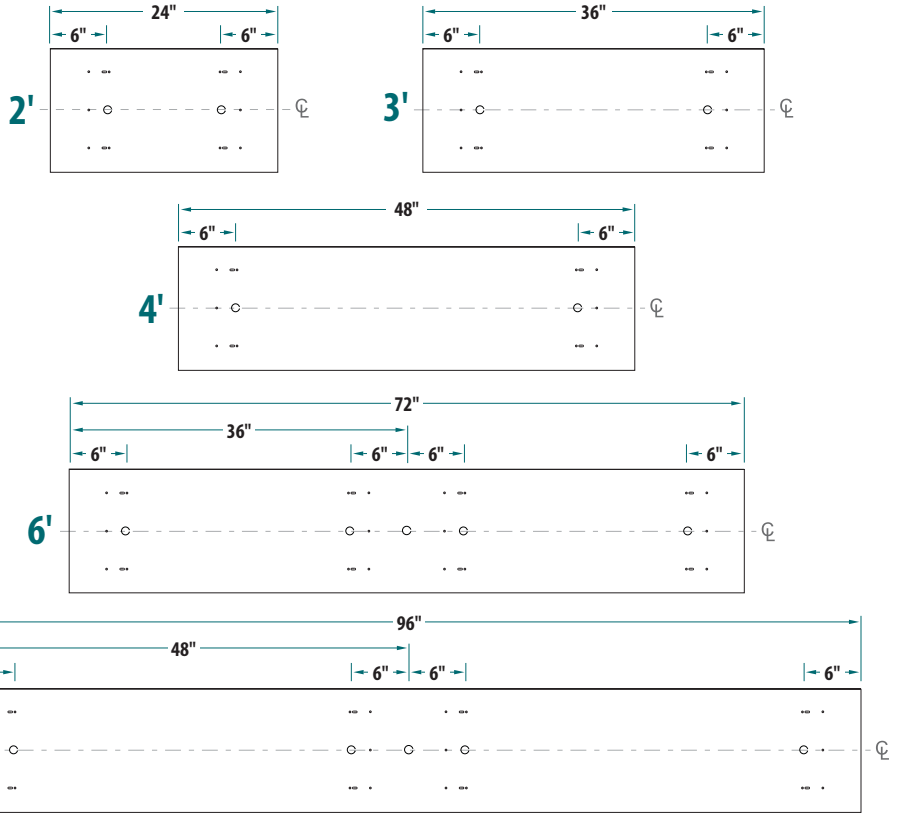
— 0 deg 1.18 — 90 deg 1.12
— 180 deg 1.18 — 270 deg 1.12

**Please see website for all other photometric data.*

2-Lamp T8 Medium Profile Wrap Cross Section



Fixture Housing Dimensions



Note: Unless otherwise specified, all EKOs are 7/8" diameter.

Ordering Information

Series	Fixture Type	Size		Reflector Material	Optics (Distribution)		# of Lamps	Lamp Type (Wattage)	Ballast Voltage	# of Ballasts	# Lamps per Ballast	Ballast Factor		Ballast Type	Options
ECS	MPW		-			-				-			-		-

Energy Conservation Series

Medium Profile Wrap

2 - 24"
3 - 36"
4 - 48"
6 - 72"
8 - 96"

M - Miro4 (95% TR)
W - White (91% TR)
C - Custom (Specify)

F - Focused
N - Normal
S - Spread
C - Custom

**N - Normal is standard*

**C - Custom optics are described in "Options" box*

1 - 1 Lamp
2 - 2 Lamp
3 - 3 Lamp
2', 3', or 4' Hsg
2 - 2 Lamp
4 - 4 Lamp
6 - 6 Lamp
6' and 8' Hsg

17 - (2') 17w T8
25 - (3') 25w T8
32 - (4') 32w T8

14 - (2') 14w T5
21 - (3') 21w T5
28 - (4') 28w T5

24 - (2') 24w T5HO
39 - (3') 39w T5HO
54 - (4') 54w T5HO

120 - 120v, 60 Hz
277 - 277v, 60 Hz
UNV - 120v-277v, 60 Hz (Multi-Tap)
347 - 347v, 60 Hz
480 - 480v, 60 Hz
xxx - Less Ballast

**UNV - Universal voltage is standard*

S - Slave (Less Ballast)
1 - 1
2 - 2
3 - 3
4 - 4

0 - 0
1 - 1
2 - 2
3 - 3
4 - 4

**If "S" was used in "# of Ballasts" box, mark as "0"*

**Use suffix "M" for Master (Example: 4M)*

L - Low
N - Normal
H - High

**If "S" was used in "# of Ballasts" box, mark as "0"*

IST - Instant Start
RST - Rapid Start
LVD - Low Voltage Dimming
DIM - Line Voltage Dimming
SDM - Step-Dimming

ADDITIONAL OPTIONS
(Please see separate "Options Sheet" for all available options)

Hg *Fluorescent lamps contain small amounts of mercury. Such lamps are labeled "Contains Mercury" and / or with the symbol "Hg." Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at www.lamprecycle.org.*

RENOVA Lighting Systems, Inc. • 20 Middlesex Road, Mansfield, MA 02048 • (800) 635-6682 • www.renova.com

Fixture types: DR6

GE
Lighting Solutions

GTx™
LED Signal Modules
8 and 12 inch
Incandescent look (120V)

GE's 14th generation of LED signal, leveraging 15 years of experience & over 6,000,000 units sold worldwide

Outstanding Performance

- Consumes up to 15% less power than GE's previous signal generation.
- Intelligent controller measures usage and temperature. Will automatically adjust to compensate for light output degradation over time.*
- Over-molded electrical connectors prevent water wicking through wires.

Maximum Flexibility

- New micro-controlled power supply is packed with advanced functionality that can be unlocked and customized to fit your specific needs.
- Low profile module permits efficient installation into existing traffic housings.
- Power consumption levels allow compatibility with most controllers.
- Offers multiple dimming configurations for ultimate customization.**
- Mask compatible to fit your unique signaling needs.***

Meets Rigorous Certification & Testing Standards

- Intertek ETL Verified compliant.
- Compliant with ITE VTCSH LED Circular Signal Supplement dated June 27th 2005.
- CSA approved.

* Compensation levels vary depending on color.
** Customer controller and load switch compatibility testing may be required. Please contact you GE representative for details.
*** Sold separately. Refer to masks datasheet TRAF208.

imagination at work

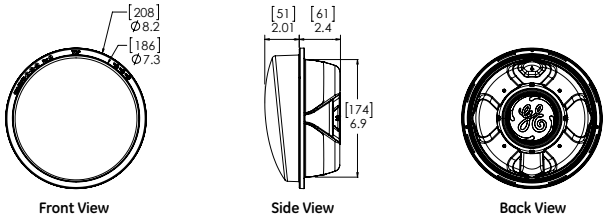
The Greatest Signals Stand the Test of Time.™

GTx™ LED Signal Modules

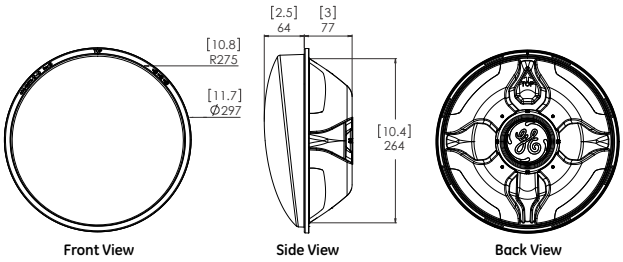
- 8 and 12 inch

Mechanical Outline

Dimensions in inches [mm]



8 inch



12 inch

Design Compliance

Test type	Compliance
Luminous Intensity	ITE VTCSH- LED Circular Signal Supplement -June 2005
Chromaticity	ITE VTCSH- LED Circular -June 2005
Moisture Resistance	Blown Wind Rain MIL-STD-810F method 506.4
Mechanical Vibration	MIL-STD-883 Method 2007
Electronic Noise	FCC Title 47 Sub. B Sec 15[1]
Transient Voltage Protection	Sec. 2.1.6 NEMA TS2-2003, 300V, 2500W Sec. 2 .1.6 NEMA TS2-2003, 600V, 10µF Sec. 2.1.8 NEMA TS2-2003, 1kV, 2Ω
Controller Compatibility	ITE VTCSH- LED Circular Signal Supplement -June 2005
Wiring	NFPA 70, National Electric Code
Transient Suppression	Sec. 8.2 IEC 61000-4-5 & Sec. 6.1.2 ANSI/IEEE C62.41.2 - 2002, 3KV, 2 Ω Sec. 8.0 IEC 61000-4-12 & Sec. 6.1.1 ANSI/IEEE C62.41.2 - 2002, 6KV, 30 Ω

Operating Specifications

Parameter	Rating
Operating Temperature Range*	-40 to +74°C (-40 to +165°F)
Operating Voltage Range	80 to 135 V (60Hz AC)
Power Factor (PF)	> 90%
Total Harmonic Distortion (THD)	< 20%
Minimum Voltage Turn-Off (VTO)	35 V
Turn-On / Turn-Off Time	< 50 ms
Lens & Shell Material	UV Stabilized Polycarbonate
Wiring	40 in, 18 AWG, Color Coded with Strain Relief
Dimming Option[2]	As per Section 5.8 of ITE VTCSH - LED Circular Signal Supplement- June 2005

* Operating Temperature Range per ITE 2005, Section 3.3.2

Distributed by:

Product Information

Model Number	Front Shell	Size (in)	Nominal AC Voltage	Nominal Power[3] (W)	Nominal Wavelength (nm)	Minimum Maintained Intensity[4] (Cd)
DR4-RTFB-77A	Tinted	8	120V – 60Hz	7	626	165
DR4-RCFB-77A	Clear					
DR4-YTFB-77A	Tinted	8	120V – 60Hz	9.5	589	410
DR4-YCFB-77A	Clear					
DR4-GTFB-77A	Tinted	8	120V – 60Hz	6.5	503	215
DR4-GCFB-77A	Clear					
DR6-RTFB-77A	Tinted	12	120V – 60Hz	6.7	625	365
DR6-RCFB-77A	Clear					
DR6-YTFB-77A	Tinted	12	120V – 60Hz	10.5	589	910
DR6-YCFB-77A	Clear					
DR6-GTFB-77A	Tinted	12	120V – 60Hz	9.1	502	475
DR6-GCFB-77A	Clear					

Standard product equipped with universal connectors (insulated spade-quick disconnect).

All lamps available in tinted or clear lens.

[1] Class A

[2] Customer controller and load switch compatibility testing may be required. Please contact you GE representative for details.

[3] Power consumption for DR6-RTFB-77A, DR6-RCFB-77A, DR6-YTFB-77A, DR6-YCFB-77A, DR4-RTFB-77A, DR4-RCFB-77A, DR4-GTFB-77A and DR4-GCFB-77A could slightly increase over time to ensure light degradation compensation.

[4] Measured at vertical angle of -2.5° and at horizontal angle of 0°.

GE Lighting Solutions • **1-888-MY-GE-LED** • www.gelightingsolutions.com
1 - 8 8 8 - 6 9 - 4 3 - 5 3 3

TRAF192-R042513

Fixture type: ACP

American Electric Lighting®

ACP Series
ACP1LED & ACP2LED

LED Floodlighting

Quick Facts

- **Two models:**
  ACP1LED replaces 100-400 Watt Floods
  ACP2LED replaces 400-1000 Watt Floods
- Available in 4000K and 5000K color temperatures, 70 CRI min
- L70 LED and driver life greater than 20 years operation
- 60% minimum energy savings and 50% maintenance savings

Key Selling Points

- Optimized thermal management system for maximum performance, long life, and reliability
- Optional tool-less entry and prewired three stage terminal block reduce installation time
- NEMA 3 pin locking style photocontrol receptacle comes standard on all product
- Mounting options include tenon slipfitter knuckle, galvanized steel yoke or painted steel yoke
- Segmented high performance internal reflectors are designed for superior field to beam ratios, uniformity, and spacing
- Robust design with IP66 rating, 2G vibration rating, and a super durable polyester paint finish with 2500 hour salt fog rating

The ACP LED Floodlighting

The ACP LED is a sustainable solution for floodlighting applications with two models to choose from; the ACP1 (medium) and the ACP2 (large). The ACP1 offers lumen packages for direct replacement for 100-400 watt floods. The ACP2 offers lumen packages for direct replacement for 400-1000 watt floods.

THE SOLUTION FOR ALL FLOODLIGHTING APPLICATIONS! LED

AcuityBrands.

ACP Series
ACP1LED & ACP2LED

LED Floodlighting

With energy savings exceeding 50% and expected service life over 20 years, the ACP LED luminaire excels at meeting the challenges associated with flood lighting. By combining the robust mechanical design features with the optical expertise and permanence of glass, this luminaire is designed as a direct retrofit for both yoke and knuckle mount applications.

ORDERING INFORMATION

Example: ACP1LED 207A 120 55 4K TM BK 05

Series

ACP1LED	Flood
ACP2LED	Flood

Performance Package

207A[1]	2 Modules, 700mA Driver	**707A**[2]	7 Modules, 700mA Driver
210A[1]	2 Modules, 1050mA Driver	**710A**[2]	7 Modules, 1000mA Driver
307A[1]	3 Modules, 700mA Driver	**807A**[2]	8 Modules, 700mA Driver
310A[1]	3 Modules, 1050mA Driver	**810A**[2]	8 Modules, 1000mA Driver
407A[1]	4 Modules, 700mA Driver	**907A**[2]	9 Modules, 700mA Driver
410A[1]	4 Modules, 1050mA Driver	**910A**[2]	9 Modules, 1050mA Driver
507A[1]	5 Modules, 700mA Driver		
510A[1]	5 Modules, 1050mA Driver		
607A[1]	6 Modules, 700mA Driver		
610A[1]	6 Modules, 1050mA Driver		

Voltage

120	120V
347	347V
480	480V
MVOLT	Mulit-volt (120-277)

Nema Pattern

55	5 X 5
65	6 X 5
66	6 X 6

Color Temperature (CCT)

4K	4000K
5K	5000K

Mounting

TM	Tenon Slipfitter - Knuckle
YK[3]	Yoke Painted
YG[3]	Yoke Galvanized

Paint

BZ	Bronze
BK	Black
GY	Gray
WH	White
GI	Graphite

Cord Length[7] Cord Type[7]

04	4′	**20**	20′
05	5′	**25**	25′
06	6′	**30**	30′
08	8′	**63**	16-3
10	10′	**43**	14-3
12	12′	**23**	12-3
15	15′		

Misc

TL	Tool Less Entry
NL	Nema Label

Options

Controls

(blank)[7]	3-Pin Photocontrol Receptacle (standard)
P5[7]	5-Pin Photocontrol Receptacle
NR[4]	No Photocontrol Receptacle
PCSS	Solid State Lighting Photocontrol (120-277V)
PCL1[4]	Solid State Long Life Photocontrol (120-277V)
PCL3[4]	Solid State Long Life Photocontrol (347V)
PCL4[4]	Solid State Long Life Photocontrol (480V)
SH[4]	Shorting Cap
DE[5,6]	ROAM CONCIERGE Dimming Control
VE[5,6]	ROAMVIEW Dimming Control
DM[4,5]	0-10VDimmingControl(controls provided by others)

Accessories (Shipped Separately)

ACP2LEDFV- __ [9,10]	Full Visor
ACP2LEDUBV-__ [9,11]	Upper/Bottom Visor
ACP2LEDVG [12]	Vandal Guard
ACP2LEDWG [13]	Wire Guard

Notes:

1. Available with ACP1LED only
2. Available with ACP2LED only
3. Requires cord length and cord type
4. Not available with DM, NR, PCL1, PCL3, PCL4, PCSS, SH, or VE
5. Not available with DE, VE options
6. Specifies a ROAM dimming enabled fixture with a dimming control module factory installed. NEMA photocontrol receptacle required. Additional hardware and services required ROAM deployment must be purchased separately
7. Not available with NR
8. Not available with TM mounting. Must be combined with a cord type. EX: 0463
9. Paint designator needed.
10. Not compatible with WG, VG, or UBV
11. Not compatible with WG, VG, or FV
12. Not compatible with WG, FV, or UBV
13. Not compatible with FV, UBV or VG

American Electric Lighting

AEL Headquarters, 3825 Columbus Road, Granville, OH 43023

Warranty Five-year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Visit our web site at www.americanelectriclighting.com

Product specifications may change without notice.
Please contact your sales representative for the latest product information.

Fixure type: AVPL2

Valiant™ LED

Series AVPL2

PRODUCT OVERVIEW

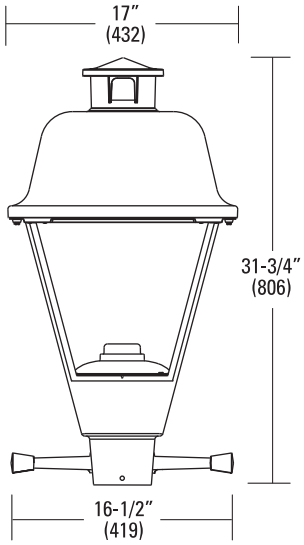
Features:

- Long-life platform: both the LED light engine and electronic multi-volt driver (120-277V) are rated
- 100,000 hrs at 25°C ambient (per LM-80)
- Surge protection device (standard) exceeds ANSI C62.41 Category C1 criteria (surge tested at 20kV/10kA)
- New DTL photocontrols for solid-state lighting (available with PCSS and PCLL options) complies with ANSI C136.10 criteria
- Downward lumens exceed that of a typical 150W HPS platform
- 3K, 4K and 5K CCT choices
- CSA listed at 30°C

Applications:

Streetscapes
Walkways
Pathways
Parks

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the AVPL2 2.4 sq. ft.
Approx. Wt. = 38 lbs.

Valiant™ LED
Series AVPL2

ORDERING INFORMATION

Example: AVPL2 30LEDE10 MVOLT 4K R3 AY

Series
AVPL2 Valiant LED

Performance Package
30LEDE10	30 Chips, 1000 mA Driver, 108 input watts
30LEDE70	30 Chips, 700 mA Driver, 68 input watts
20LEDE10	20 Chips, 1000 mA Driver, 72 input watts
20LEDE70	20 Chips, 700 mA Driver, 45 input watts
10LEDE10	10 Chips, 1000 mA Driver, 38 input watts
10LEDE70	10 Chips, 700 mA Driver, 25 input watts

Voltage
MVOLT	Multi-volt, 120-277V
347	347V
480	480V

Color Temperature (CCT)
3K	3000K
4K	4000K
5K	5000K

Distribution
R2	Type II
R3	Type III
R5	Type V

Optics
AY	Acrylic (Prismatic)
RNA	Rain Panel Acrylic
RNP	Rain Panel Polycarbonate

Options

Paint [1]

(blank)	Black (standard)
GY	Gray
DDB	Dark Bronze
WH	White
BZ	Bronze

Photocontrol

(blank)	NEMA Photocontrol Receptacle (standard)
NR [2]	No Photocontrol Receptacle

Miscellaneous

PCSS [4,5]	Solid State Lighting Photocontrol (120-277V)
PCLL [4,5]	Solid State Long Life Photocontrol
NL	NEMA Label
TL	Tool-less Entry
LDR [3]	Ladder Rest
SH	Shorting Cap
DE [7]	ROAM Dimming Enabled
DM [6]	DM 0V-10V dimmable driver only (leads attached)
HSB	House Side Shield Black
HSW	House Side Shield White
XL	Not CSA Listed
CR	Enhanced Corrosion Resistant Finish
SS	Stainless Steel Hardware

Notes:
1. Other colors available, please contact factory
2. PC and SH not available with NR option
3. Ships with unit, field installed
4. Standard failure mode="Fail Off"
5. Photocontrols supplied with ANSI Standard Turn-On levels
6. DM not available for 30LEDE10 or 20LEDE10 with 480V
7. Specifies a ROAM dimming enabled fixture with a dimming control module factory installed. NEMA photocontrol receptacle required. Additional hardware and services required. ROAM deployment must be purchased separately.

American Electric Lighting®

American Electric Lighting
Acuity Brands Lighting, Inc.
3825 Columbus Rd. S.W., Granville, OH 43023
Phone: 800-754-0463 Fax: 740-349-4490
www.americanelectriclighting.com

OPERATING CHARACTERISTICS

DLC products are listed in **BOLD**
Non DLC products are indicated by shaded box

		TOTAL LUMENS		
LED Quantity, mA, CCT	**Input Watts**	**R2-AY**	**R3-AY**	**R5-AY**
30LEDE10 3k	106	5188	5075	5428
30LEDE10 4k	106	**6526**	**6384**	**6828**
30LEDE10 5k	106	**7035**	**6882**	**7360**
30LEDE70 3k	66	**3953**	**3867**	**4136**
30LEDE70 4k	66	**4972**	**4864**	**5202**
30LEDE70 5k	66	**5360**	**5244**	**5608**
20LEDE10 3k	72	3622	3543	3789
20LEDE10 4k	72	**4556**	**4457**	**4766**
20LEDE10 5k	72	**4911**	**4804**	**5138**
20LEDE70 3k	45	**2699**	**2640**	**2839**
20LEDE70 4k	45	**3395**	**3321**	**3571**
20LEDE70 5k	45	**3660**	**3580**	**3850**
10LEDE10 3k	39	1941	1898	2030
10LEDE10 4k	39	**2441**	**2388**	**2554**
10LEDE10 5k	39	**2631**	**2574**	**2753**
10LEDE70 3k	26	**1454**	**1423**	**1521**
10LEDE70 4k	26	**1829**	**1789**	**1914**
10LEDE70 5k	26	**1972**	**1929**	**2063**

DLC products are listed in **BOLD**
Non DLC products are indicated by shaded box

		TOTAL LUMENS					
LED Quantity, mA, CCT	**Input Watts**	**R2-RNA**	**R3-RNA**	**R5-RNA**	**R2-RNP**	**R3-RNP**	**R5-RNP**
30LEDE10 3k	106	5624	5482	5916	5152	5046	5427
30LEDE10 4k	106	**7073**	**6895**	**7441**	**6480**	**6347**	**6826**
30LEDE10 5k	106	**7625**	**7433**	**8022**	**6986**	**6842**	**7359**
30LEDE70 3k	66	**4277**	**4169**	**4500**	**3925**	**3845**	**4135**
30LEDE70 4k	66	**5380**	**5244**	**5660**	**4938**	**4836**	**5201**
30LEDE70 5k	66	**5800**	**5654**	**6101**	**5323**	**5213**	**5607**
20LEDE10 3k	72	3899	3801	4102	3596	3523	3789
20LEDE10 4k	72	**4905**	**4781**	**5160**	**4524**	**4431**	**4765**
20LEDE10 5k	72	**5287**	**5154**	**5563**	**4877**	**4776**	**5137**
20LEDE70 3k	45	**2900**	**3801**	**3078**	**2695**	**2639**	**2839**
20LEDE70 4k	45	**3678**	**4781**	**3871**	**3389**	**3320**	**3570**
20LEDE70 5k	45	**3961**	**5154**	**4173**	**3654**	**3579**	**3849**
10LEDE10 3k	39	2087	2034	2195	1927	1887	2030
10LEDE10 4k	39	**2625**	**2558**	**2761**	**2424**	**2374**	**2553**
10LEDE10 5k	39	**2829**	**2758**	**2977**	**2613**	**2560**	**2752**
10LEDE70 3k	26	**1568**	**1529**	**1650**	1444	**1414**	**1521**
10LEDE70 4k	26	**1973**	**1923**	**2076**	**1816**	**1779**	**1913**
10LEDE70 5k	26	**2127**	**2073**	**2237**	**1958**	**1918**	**2063**

American Electric Lighting®

American Electric Lighting
Acuity Brands Lighting, Inc.
3825 Columbus Rd. S.W., Granville, OH 43023
Phone: 800-754-0463 Fax: 740-349-4490
www.americanelectriclighting.com

Fixture type: ATBS

American Electric Lighting

Autobahn Series ATBS

LED Roadway & Security

Quick Facts

- 50-150 watt HPS replacement
- 100 watt MH and 175 watt MV replacement
- ANSI Class C Surge Protection
- Weight~12 lbs
- Types 2, 3 & 5 Distributions
- IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation
- Optional acrylic refractor increases vertical foot-candles
- 4000K & 5000K CCT
- Optional 20 year life photocontrol
- Field Adjustable Output module allows the light output to be adjusted from 100% down to 35%

Key Selling Points

- High performance solution for residential roadways and security lighting applications
- 60% more efficient than comparable HID luminaires
- Sleek attractive dayform with weight and EPA less than comparable cobraheads
- Leading-edge optics improve visibility on roadways
- Nighttime Friendly™
- Tool-less features
- Designed to operate at 40°C ambient
- Best-in-class surge protection and efficacy (lpw)
- Field Adjustable Output combined with the ability to easily add the optional acrylic refractor means that a single product configuration can be flexibly applied to cover the entire spectrum from roadway lighting to rural residential security lighting.
- **Municipalities:** Energy efficiency and holistic longevity make it the ultimate sustainable solution for renovating legacy streetlights.
- **Utilities:** Lineman-friendly features make it easy to install; its long, reliable operating life reduces the hassle of lighting grid maintenance (especially when paired with ROAM smart controls).

The ATBS LED Roadway & Security

The ATBS uses breakthrough LEDs and precision-engineered optics to provide exceptional illumination while also saving energy. Plus, it works seamlessly with the Acuity Brands ROAM® system to maximize energy and maintenance savings through enhanced monitoring and control functions.

QUALITY PERFORMANCE WITH QUICK PAYBACK!

LED

Autobahn Series ATBS

LED Roadway & Security

ORDERING INFORMATION

Example: ATBS A MVOLT R2

Series

ATBS Autobahn LED Roadway & Security

Performance Packages

A	18 watt – 1,800 lumens
B	24 watt – 2,400 lumens
E	39 watt – 4,000 lumens
F	49 watt – 4,600 lumens
G	64 watt – 5,600 lumens
H	71 watt – 6,300 lumens

Voltage

MVOLT Multi-volt, 120-277V

Optics

R2	Roadway Type II
R3	Roadway Type III
R5	Roadway Type V
D2	Type II, Drop Refractor included
D3	Type III, Drop Refractor included
D5	Type V, Drop Refractor included

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min. (standard)
5K	5000K CCT, 70 CRI Min.

Paint

Blank	Gray (Standard)
BK	Black
WH	White
BZ	Bronze

Surge Protection

Blank	Acuity SPD-10kV/5kA with inductive filter (Standard)
MP	MOV Pack
IL	SPD with Indicator Light

Misc.

HSS	House Side Shield
NL	NEMA Label
XL	Not CSA Certified

Controls

(Blank)	3 Pin NEMA Photocontrol Receptacle
NR[1]	No Photocontrol Receptacle
DM	0V-10V Dimmable Driver

Controls

P5	5 Pin Photocontrol Receptacle (dimmable driver included)
P7	7 Pin Photocontrol Receptacle (dimmable driver included)
PCSS[1]	DTL DSS Photocontrol
PCL1[1]	DTL DLL Photocontrol 120-277V
AO	Field Adjustable Output
SH	Shorting Cap

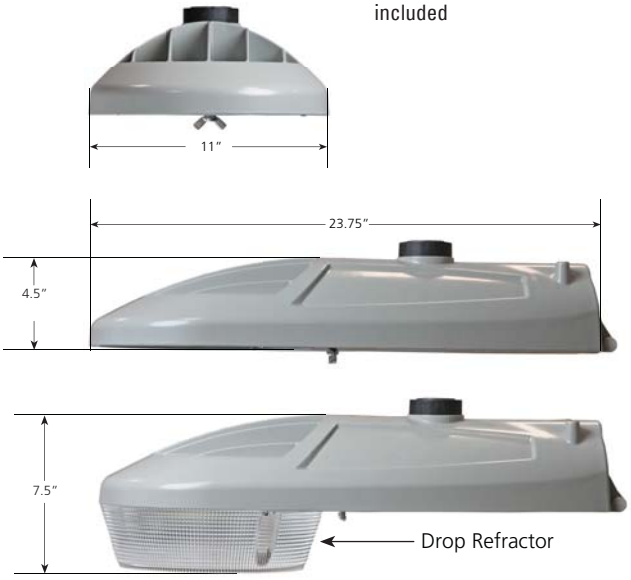
Install Packages

PKGS	DTL DSS Photocontrol
PKGL	DTL DLL Photocontrol

Packages ship with selected photocontrol, 24", 1 ¼" diameter arm, 5' of prewire and mounting hardware

Accessories

ATBSREF	Drop Refractor for field installation
ATBSHSS	House Side Shield for field installation
ATBSLTS	Light Trespass Shield for field installation



Effective Projected Area (EPA)
The EPA for the ATBS is 0.6 sq. ft.,
Approx. Wt. = 12 lbs. (5 kg)

Notes
1. Not available with Install Packages.

Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

American Electric Lighting®

AEL Headquarters, 3825 Columbus Road, Granville, OH 43023

Warranty Five-year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Visit our web site at www.americanelectriclighting.com

Product specifications may change without notice.
Please contact your sales representative for the latest product information.